Southern Flight

JANUARY
1941

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PERIODICAL DIVISION

LONGER RANGE—QUICKER TAKEOFF

Combining the use of a new high-strength alloy with the N. A. C. A. laminar flow air-foil section and an improved plan form, Hamilton Standard has developed a new propeller blade which adds still further to propeller efficiency. These blades which are now being installed on Pan American Airways' Boeings, have improved the takeoff, increased the range, and will help make possible non-stop service across the Atlantic. Once again Hamilton Standard plays a leading part in advancing airplane performance.

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The Birdmen's Perch

This month we inaugurate a new feature—the Funnyboner's Dept. We'd like to hear about the boners you pulled when you were learning to fly. I think we'll get some pretty good laughs, and of course, there's nothing like profiting by the other fellow's mistakes!

Major Al Williams, alias "Tattered Wing-Tips," Mgr., Gulf Aviation Products, Gulf Building, Pittsburgh, Pa.

FUNNYBONER, NUMBER 1

Here is the first boner I pulled while learning to fly:

I had just soloed and had logged a few hours solo time, when I took the trainer up for a half hour practicing turns and figure eights. When my half hour was up, I glided back to the airport and prepared to land. I checked the wind sock as usual, but this day I must have been thinking of something else, for I started to land *down* wind. The plane was an old two-seater, open-cockpit plane and landed rather hot. My approach was good, but as I leveled off to set her down, I noticed the hangars and school office were flashing by at rather a high rate of speed. I kept pulling back on the stick trying to set her down, but I kept using more and more of the runway. I noticed the last hangar at the end of the runway flash past, and I gunned her to come around again. As I did, I noticed another plane preparing to land in the opposite direction to which I was attempting to land.

All of a sudden it dawned on me that I had landed *down* wind instead of *into* the wind.

Clifford Smith, Forest Hills, L. I.

IS THERE A CARPENTER IN THE HOUSE?

Two amateur pilots were building a hangar for their plane. They had been saving money for a long time to build this hangar, and they had just enough lumber on hand—and no more.

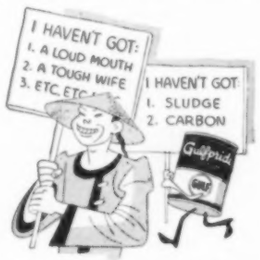
Unfortunately, one of the pilots, while working, sawed a ten-foot beam of 3″ x 5″ in half by mistake. He now had two

five-foot lengths and the plans called for a ten-foot beam. To complete the hangar, they had to splice the two five-foot lengths together. And remember—aside from nails, they could spare nothing, neither hardware nor wood. If you had been there, how would you have helped those two fellows splice those two pieces together?

Send in your answer, *with* illustrations.

THE CHINESE HAVE THE RIGHT IDEA

Here in this country, we usually judge a man by what he has: 300 hours in the air, a million dollars, or a set of twins. In China, on the other hand, a person is judged by what he hasn't. Bad habits, a loud mouth, or a shrewish wife, for instance.



Now, if you really want to appreciate Gulfpride Oil to the fullest, you've got to take the Chinese point of view. Gulfpride is important to you because of what it *hasn't!*

Gulfpride Oil *hasn't* a lot of things which might lead to inefficient lubrication in your motor, because we've gone to a lot of trouble to see that these things were taken out!

To be specific, we've started with only the finest crudes. Because, while we know it's possible to make a fair oil out of poor crude, we know that only the finest crude will give you the *best* oil.

Also, that's why we use the Alchlor process—experience has shown us that this special process removes up to 20% more of the carbon and sludge formers! It all boils down to this: because we've taken the trouble to see that Gulfpride has a lot of important "*hasn'ts*"—you've got one of the finest, toughest, longest-lasting oils you could put into a motor!

THIS MONTH'S WHOPPER

Dear T.W.T.:

I am the only man alive, who holds the solution to a problem which has baffled science for years.

I shall explain to you why Halley's comet is not a comet, but is none other than my uncle, Pookie Googins.

Uncle Pookie was the greatest safe cracker of all time. Admired by all in that profes-

sion. Safe manufacturers spent thousands of dollars inventing new safes just to baffle Uncle Pookie. But he always found a way to spoil their efforts. Finally, they built a safe that was fire-proof, torch-proof, bomb-proof, and crack-proof. But that didn't stop Uncle Pookie, no sir!

He had heard of the wonderful things G. A. G. was doing, so he proceeded to the nearest airport and obtained a small bottle of this amazing gas.

He poured a little of the G. A. G. in the cracks around the safe door, calmly stood back, and flicked a lighted match at it.

Well sir, right then and there Uncle Pookie discovered the meaning of the saying "Crime doesn't pay."

You can yank my prop, if that safe didn't make a noise like a cross between a thunderbolt and a gang of women at a fire sale. With a tremendous howl, it left the floor and took Pookie at the belt buckle.

There he stuck as she zoomed for the stratosphere.

The last time he passed the earth, I noticed he and the safe were taking on a teardrop shape. I figure he will come around again in about forty years, and by that time I hope to invent a gun that will shoot a life line to him. I'm considering using G. A. G. instead of powder to fire it with.

Flipper Lewis

P.S. That ring around Saturn is a friend of mine who took off in a power glider with a tank full of G. A. G. and got his controls jammed in a left bank.

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MAINTENANCE

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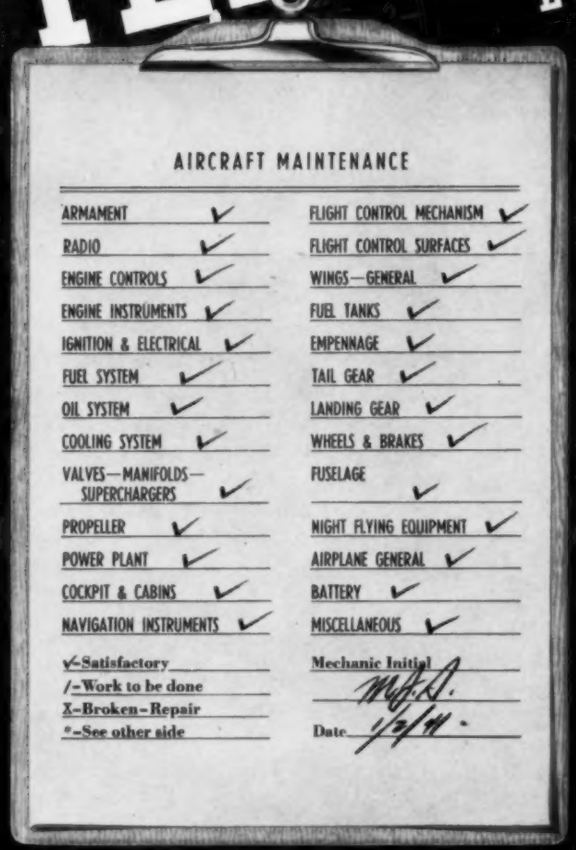


NORTH AMERICAN AVIATION, INC.

INGLEWOOD, CALIFORNIA, U.S.A.

* STANDARD U. S. ARMY TIME OF OVERHAUL FOR N. A. A. TRAINERS 2500 HOURS

DORNIER

Do. 17
3 Place
Military Aircraft
Bomber

SPECIFICATIONS: Span 18 m. (59 ft.). Length 15.95 m. (52 ft. 3.95 in.). Height 4.55 mi. (14 ft. 11.1 in.). Wing area 55 sq. m. (592 sq. ft.). Power loading 4.26 kg./hp. (9.4 lb./hp.). Wing loading 147.2 kg./sq. m. (30.02 lb./sq. ft.). Empty weight 4,740 kg. (10,449 lb.). Gross weight 8,100 kg. (17,857 lb.). Fuel 1,940 kg. (4,300 lb.). Oil 127 kg. (280 lb.).

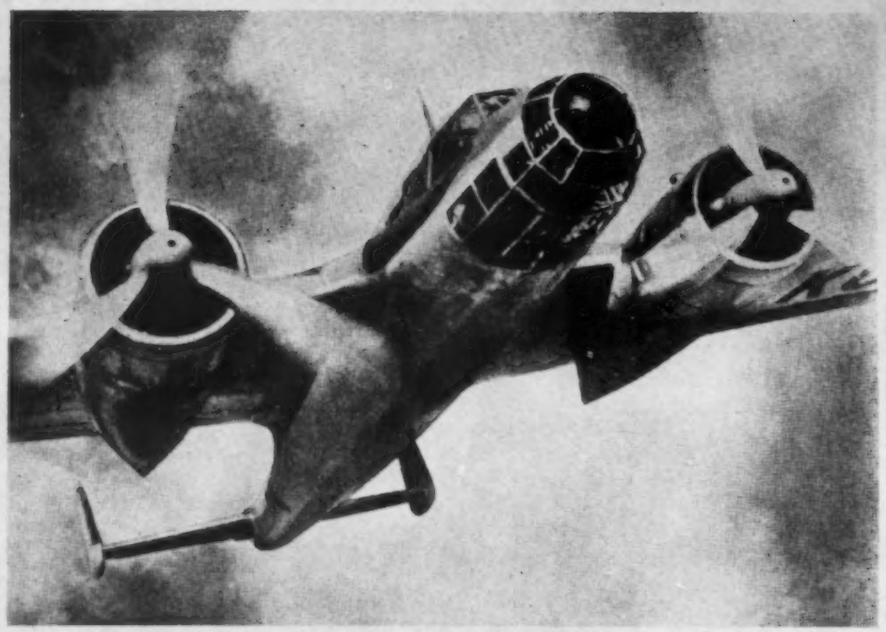
CONSTRUCTION: Fuselage; metal monocoque construction with flush-riveted smooth skin over built-up frames and stiffeners joined by longitudinal stringers, enclosed cockpit for pilot ahead of leading edge of wing with prone bombing position underneath, gunner's cockpit to rear of pilot just ahead of wing spar. Wings; mid-wing monoplane, all-metal cantilever structure, flush riveted metal skin except underneath wing between spars which is covered with fabric, structure consists of two built-up girder spars with main ribs of dural channels and intermediate ribs of tube and channel, slotted ailerons have trim tabs, trailing-edge flaps between ailerons and fuselage. Tail Group; twin fins and rudders, fin and adjustable stabilizer of all-metal construction, rudders and elevators are fabric-covered metal structures, balanced rudders have trim tabs. Landing Gear; hydraulically-operated retractable landing wheels and tail wheel.

STANDARD EQUIPMENT: V.D.M. three-blade controllable-pitch propellers. Wheel brakes. Automatic pilot. Two-way radio. Armament usually consists of two fixed machine guns in fuselage with movable guns in lower and rear stations. Internal bomb compartments with provision for extra racks on sides of fuselage.

INSTRUMENTS: Full complement of engine, flight and navigation instruments.

PERFORMANCE: Maximum speed 500 k.p.h. (310 m.p.h.) at 4,000 m. (13,120 ft.). Cruising speed 434 k.p.h. (270 m.p.h.) at 4,000 m. (13,120 ft.). Landing speed 110 k.p.h. (68 m.p.h.). Cruising range 2,500 km. (1,552 mi.).

ENGINE: Mercedes D.B. 600 C/D (2), each 950 hp. at 2400 r.p.m. (take-off). Also produced with two Gnome-Rhone 14 No. engines with the following specifications and performance figures: Power loading 3.2 kg./hp. (7.04 lb./hp.). Wing loading 116 kg./sq. m. (23.78 lb./sq. ft.). Empty weight 4,320 kg. (9,504 lb.). Gross weight 6,400 kg. (14,080 lb.). Maximum speed 419 k.p.h. (260 m.p.h.) at 3,450 m. (11,320 ft.). Rate of climb 416 m./min. (1,362 ft./min.). Cruising range 2,500 km. (1,552 mi.).



Dornier Do. 17

This is page 1014 from AEROSPHERE

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REVVING UP

Pipe the new front cover! We reckon you could call that having our face lifted. For years we carried the "Southern Flight" banner at the bottom of the page in order to give all emphasis to the news photo of the month. Now that we are going in for newsstand distribution and because United Aircraft Corporation has purchased a portion of the front cover for every issue in 1941, the old sig goes conventional—to the top of the cover. It's the first move towards improved format and we hope you like it.

* * *

The NAA has sent out a timely warning to be on guard for aviation rackets. Now that aviation is booming there are bound to be promoters who will attempt to cash in on the boom with fraudulent schemes and illegitimate promotions, mulcting the long green from the unsuspecting folks who want to get into aviation or want to invest money. There is room for many new enterprises productive of necessary equipment or services. It's a simple matter to check up on them. So we heartily underscore the NAA warning, adding the suggestion that you investigate before you spend any money and be on guard constantly not only for your own sake but for the public's sake as well. Aviation has a particularly clean bill of health in the United States. Let's help keep it clean by tar and feathering the blood-sucking promoters before they get started.

* * *

An especially interesting story is told by "Rocky" Rochlen, Director of Public Relations, Douglas Aircraft Company, about a minor matter of public relations expense that was being discussed in one of the large aircraft plants. The plant manager, opposing the expenditure as one which was unnecessary and would contribute nothing to the sale of airplanes, or the advancement of production, said to the public relations officer:

"Do you know that 87 per cent of our business comes from the Army and Navy?"

To which the public relations man replied, earnestly:

"And do you know that 100 per cent of the Army's and Navy's money comes from the public?"

* * *

The CAB wants to know if you are a "squatter". Do you squat at the end of the runway, headed into the wind, while all the world above you circles and tries to guess your intentions? If you are not ready to take off immediately on reaching your take off position, CAB says not to turn into the wind. You might be preventing others from landing. Making adjustments, giving instructions or passing time can be done without blocking traffic. Don't be a squatter!

Southern Flight

The only complete monthly digest of aeronautics in the South and Southwest

JANUARY, 1941 VOL. XV, NO. I

CONTENTS

135

SPECIAL FEATURES

Mr. Sikorsky Made It Work—by Mark Mason 7
New Year Round-Up—by George E. Haddaway 8
Just Among Ourselves—Editorial Comment 6

REGULAR FEATURES

The Sky's The Limit—by Bill Green 12
New Equipment Review—Ryan ST-3 Trainer, Fiberglas Wing Covering, Goodrich Bullet-Sealing Tanks, Heath Windshield . . 14
Your Industry—News of the Month in Review 17
Ports of Call—Correspondence from the Airports and Airways . 24
Directory and Classified Advertising 29
The Bar Nothing Ranch—by The Old Cowhand 30

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JUST AMONG OURSELVES

AN ECONOMIC PROBLEM?

FOR several years now the South has blushed under the embarrassing title provided by high administration officials who have referred consistently to the region as the "Nation's No. 1 Economic Problem". The time has come when this unwanted "monicker" can be dropped.

There are many concrete reasons why we take this stand; the most impressive, however, comes from a recent statement by one of the Nation's recognized marketing authorities, Mr. John Guernsey, who made a special analysis last month for the venerable *New York Times*. It appears in the business section of their December 22 issue.

Guernsey reported as follows: "The States from Maryland and Delaware right down to the Gulf at the Rio Grande, with but few exceptions, constitute the section deserving the most attention and the sharpest upward revision of budgets. What loomed in some eyes as the locale of 'America's Economic Problem No. 1' turns out to be the brightest spot relatively in the country." He believes it is fair to expect that additional promotional effort in advertising and sales personnel, and an increase in dealerships will pay dividends in all the States that represent the bright spots on the Nation's trade map. Basing his opinions on recent Census Bureau reports, the expert is of the opinion that the Nation is not only completely out of the depression, but has been out during all of 1940.

This is the most reassuring report we have read in recent years not only from the standpoint of meat but also from the standpoint of source. In fact, it makes us even more optimistic about the continued growth of aviation in the Southern half of the Nation during 1941. Because, after all, the economic conditions that affect bank clearings, the nickel candy bar business, the cotton industry or any other business also affect aviation.

WIDE AWAKE

THE $40,000,000 congressional appropriation for airport improvement and construction during 1941 is pathetically small. It means that one of the major problems facing aviation remains unsolved—the problem of adequate ground facilities. Approximately 250 airports will be affected by the 1941 appropriation. That's not a drop in the bucket. Besides, most of the money will go into making super-airports, when we need quantity more than quality at the present time. We don't infer that we favor the construction of a lot of rough or dangerous landing fields; but we do maintain that a thousand new landing fields with inexpensive hangars on them would be far more valuable from a national defense as well as a practical standpoint than will be 250 super-super airports with two-mile paved runways and fancy hangars.

The small pittance that Uncle Sam is going to spend on airports in 1941 means that cities and States will have to take up the task.

One example of a municipality that is very much awake may be found in Oklahoma City. That progressive city is providing the insurance for always being on the aviation map. A trust was recently formed to take over 2,000 acres of land for future use, as the need develops for airport facilities. Let us hope that other towns and cities follow her example, planning for the future without money-hungry eyes on Washington. And those States with departments of aeronautics might well get in the saddle immediately and work with their respective State governments and progressive municipalities towards long-range airport and landing field programs irrespective of Federal funds. That alone will provide the solution for the terrible situation confronting us. The public safety alone requires that kind of action.

AFTER THE WAR

IT appears the Government intends to stop production of commercial air transports so all production can be given over to the military. We also hear the military people want priority for seats on the airlines, even to kicking off the regular fare paying passengers.

This is just another case of how different departments and bureaus grab power when they have the upper hand. We must remember that we must live after the war. The airlines and other industrial enterprises *must* be allowed to exist and expand even in times of emergency; for when the emergency is over (as sad experience of the past has taught us) we must all live by peaceful industry and agriculture again.

There is a real danger that the airlines will be frozen in their present state of development, for if they can't get new ships they can't expand, and if an industry can't expand, then it gets in a rut. We don't think that the rush for military airplanes should stop production on commercial transports. A plan can be worked out whereby the airlines can keep on getting equipment and can keep on expanding. The importance of a splendid network of commercial air transport in national defense is too obvious for much argument. It's about time our excellent but far too small air transport system got some "priority", war or no war.

ORGANIZATION FOR THE FBO

ONCE again a small group of men with energy and foresight undertakes the job of welding the fixed-base aviation operators into a strong and active national organization. The idea is not new. But previous attempts to do the job failed—flopped because too few operators had the desire to better their conditions or the inclination to work with their professional brethren for self-preservation.

With the preponderance of fixed-base activity currently in the realm of flight training, it is logical that the newly formed organization should place emphasis on the training angle both in name, National Aviation Training Association, and on its immediate purpose, the improvement of training methods and continuation of the Civilian Pilot Training Program on a yearly contract basis.

Participation in the CPTP is not a prerequisite for membership in NATA. Although the majority of original members are CPT contractors, the association is open to all types of operators, non-scheduled fliers, manufacturers and service concerns serving non-scheduled civil aviation. Inclusion of these elements should mean a bright future for the organization. Only by being truly representative of fixed-base operations throughout the Nation, with the great majority of operators as active members, can NATA realize true effectiveness and do the job that must be done if non-scheduled aviation is to reach the high place it deserves as a healthy and vigorous member of the family, living in unity and singleness of purpose.

The sincere enthusiasm and untiring efforts of the association leaders unfortunately cannot guarantee that success. It remains for the individual operator to decide for himself whether or not his profession is to have a powerful trade organization. If enough operators don't care, don't join and don't work, the deal will be boogered up. *(Continued on page 11)*

MR. SIKORSKY MADE IT WORK

A great designer's confidence in the future of the helicopter is justified by the remarkable results of his flying model which he has piloted on several hundred successful test flights.

MARK MASON

WHEN the history of aviation in 1940 is written by future scribes for posterity we dare say one of the outstanding achievements of aeronautical science and one of the most significant developments of the age will be put down as Igor Sikorsky's helicopter. Mr. Sikorsky, who is engineering manager of the Vought-Sikorsky Aircraft Division of United Aircraft Corporation, already has a place in history alongside the brothers Wright and Santos Dumont; and the VS-300 helicopter which he designed, although considered by many as just one more of many contributions he has made to aeronautics, certainly holds the claim as the most unique and fascinating.

A purely experimental craft, this helicopter has demonstrated its ability to rise vertically and obliquely, to fly forward, backward and sideways, and to hover over one spot under wind conditions ranging from a dead calm to fresh gusts of some 25 miles an hour. In its ability to hover, the machine represents fulfillment of the long-awaited dream of controlled flight at zero miles per hour.

The first public demonstration of the Vought-Sikorsky helicopter occurred on May 20th with Mr. Sikorsky at the controls. The craft thus became the first successful single main lifting rotor helicopter in the world, according to its designer. A few weeks afterward, on July 18th, a flight of more than 15 minutes was made, establishing what is believed to be the longest flight of a direct lift aircraft in the United States.

Several days later an Army Air Corps officer, following only a few minutes of instruction, took the helicopter up on a number of successful flights.

On September 6th and October 14th, the machine was flown for 14 and 15 minutes, respectively, at forward speeds ranging from 0 to 45 miles an hour. Although the fastest speeds have been attained in forward flight, speeds up to 20 miles an hour have been reached in backward and sideways flight. During these and several hundred other flights the helicopter reached altitudes of between 80 and 100 feet.

On numerous occasions the craft was flown to a landing place hemmed in on all sides by obstacles. Hovering over a small cleared area, it then descended vertically under complete control by the pilot. The helicopter rose into the air with similar ease, clearly demonstrating its ability to operate successfully from areas congested except for a space not much bigger than the diameter of the main rotor—a matter of some 28 feet.

As a result of these experiments it is thought that the helicopter would be highly useful for operations from small spaces between buildings or trees, from a platform on top of a building, from the deck of a ship, or from the limited confines of a back yard.

The most spectacular performance of which the Vought-Sikorsky helicopter is capable is hovering. In an accompanying picture, Mr. Sikorsky is shown hovering the helicopter at a low altitude. On this flight, one of the many that have been made, a small suitcase was put aboard. The helicopter flew directly up to the man on the ground, then hovered before him, and finally backed off with its load without touching the ground during the entire process. The completely satisfactory control of the machine was thus demonstrated.

IN earlier single-rotor helicopter types one of the main difficulties was control. This problem of control has been solved in the Vought-Sikorsky VS-300 by an ingenious system of three small auxiliary rotors located at the rear of the fuselage—one being in line with the centerline of the fuselage and revolving in a vertical plane,

(Continued on page 16)

The Model VS-300 Helicopter, showing the machine during a 15-minute flight with its designer, Igor Sikorsky, at the controls. On this particular flight, Sikorsky hovered the machine over the head of a man on the ground while a suitcase was pulled aboard the helicopter.

NEW YEAR ROUND-UP

No matter where you are sitting, you can see the dawn of a new day for the airplane. It has finally come into its own, and the people who produce and operate it can look forward to the greatest year of aviation development in history

GEORGE E. HADDAWAY

ALTHOUGH it took another world war to provide the necessary impetus for what we now can call the full and complete utilization of the airplane in the modern world's complex scheme of things, the testy times require us to forget causes and think only in terms of action and results. True, it's a sad commentary to think that a great industry must achieve full stature through the bloody carnage of a world at war, that the richest nation in all the world must make up in nothing flat for the years devoured by the locusts. But the searchlight must be turned 'round from its focus on the blindness of political leaders and regrets for past actions and lost opportunities and spotted instead upon the days that lie ahead. This nation wants airplanes—the best airplanes in the world and in quantities never before dreamed of by the wildest speculative minds.

It's a herculean task. The nation has asked the aviation industry to do the impossible. Yet the impossible is being accomplished in spite of all the hurdles blocking the way. Just witness the progress to date within the brief span of very few months after the long-awaited and long-overdue signals were given. And, in considering this progress, this gearing up to emergency production, let a jittery nation remember one thing: that were it not for the brains, energy, genius and foresight of a young and struggling aviation industry operating under a system of free enterprise, the entire effort would flop as surely as God made little green apples.

But we have had free enterprise though modified somewhat during the 1930's. Yet the genius and foresight of American aeronautics has prevailed throughout the hard years. They are prepared to meet the emergency. Let those who would shackle free enterprise remember that—and remember forever the fate of France.

It's too bad that the optimism and the positive confidence of every branch of the aviation family in their ability to meet the emergency cannot be transmitted to the people in the streets. Only the newspaper headlines of the future, which will announce the huge production figures, can satiate them, and they will have to wait a few more months for that. They don't seem to realize that you can't jump from manufacturing toothpicks to guns or canoes to torpedo boats overnight. You can't start grinding out thousands of airplanes a month by voting money and turning a crank. Unfortunately, it takes some 215 companies and products from 41 States to build a bomber. It requires tools, facilities and trained workmen we don't have, co-ordination and planning, and a host of other things you can't pull out of the magician's hat. Consequently we are accused of being "30 per cent behind" according to somebody's empirical and mythical production figures! So the public wants Henry Ford to build airplanes.

Let's take stock of the entire aviation picture and see where we stand in every department. A review of the progress made since the emergency was officially declared and what we can expect in completing the job will confirm the sound confidence of aviation people so apparent at every turn. Since a fair share of the eleven billions voted for defense is going into aviation, and since we have fine leadership (though still lacking one Big Boss) in the National Defense Advisory Commission the ball has started rolling.

The Manufacturers

THE manufacturing end of the aviation industry is now busy with plant expansions that will be in use by next June. As of last month manufacturers of aeronautical equipment had spent over $83,000,000 with contracts let for an additional $232,000,000 worth of plant expansion. And here are the employment figures: As of January a year ago shop employes totalled only 60,000. Today they number 164,000 and when the factory expansion programs are complete next June, the industry will have some 382,000 shop employes on the payroll, not including upwards of another 100,000 who will be working for all-important subcontractors.

Floor space last year was 11,983,896 square feet. Today we have 22,530,988 square feet and six months from now an additional 22,635,190 square feet will be in use. Although these figures include airplane, engine, propeller and principal accessories manufacturers, you can see the industry isn't letting grass grow under its feet.

Our military services have on order for delivery by the middle of 1942 approximately 25,000 airplanes of all types and 14,000 more have been allocated for export, or a total of 39,000 to be produced and delivered within the next 18 months. Add to this the leaping and bounding demand for civilian craft of all types and the total reaches staggering proportions. Finally, it must be remembered that just because the originally appropriated funds have been spent doesn't mean that more money won't be appropriated or that there will not be additional orders. The industry expects additional orders during 1941, perhaps not in the 1940 quantities, but substantial orders just the same. At the moment, factory expansions, tooling up and training new personnel are the order of the day.

So it is we can say with positiveness and all truthfulness that the manufacturing end of the aviation industry has its house in order and is meeting the emergency with dispatch and efficiency, despite the fact that they are still harried by such factors as governmental red tape, lack of standardization of specifications and contracts by the Army and the Navy, labor worries, shortages of tools, materials and trained personnel. The American aircraft, engine, propeller and accessory manufacturers have set out on their course to expand their production at a rate twice that of Germany and five times that of Great Britain.

Scheduled Air Transport

THE air transport industry in the United States was fourteen years old last month. It experienced the greatest year of its scintillating history. It now does an annual gross business of seventy-five million dollars, employs 20,000 persons, and last year carried approximately

THESE FOUR NEW DESIGNS GIVE PROOF TO THE FACT THAT THE NATION'S DEMAND FOR AERIAL SUPREMACY WILL BE MET.

Upper Left: The Model 21B Curtiss-Wright Interceptor-Fighter is a "climbing son-of-a-gun," according to Curtiss-Wright executives at the St. Louis factory. Designed primarily for intercepting bombers, the single-place, all-metal monoplane climbs over a vertical mile a minute. Powered with a Wright Cyclone, the 21B will accommodate four heavy caliber machine guns firing through its propeller. It is equipped with oxygen facilities, radio and the electric "Tell Tale" system of instrument reading.

Upper Right: The new Kinner powered Ryan ST-3 Trainer, the commercial version of the ship now being produced for the Army Air Corps under a $7,425,000 contract, shows many improvements over its famous predecessor models. The ST-3 is available with four different engine installations: the Kinner B-54 125-h.p. air-cooled radial (shown above), the Kinner R-54 160-h.p. radial, the Menasco D-4 125-h.p. in-line engine and the Menasco C4-S 150-h.p. engine.

Lower Left: Republic's P-43 "Lancer" pursuit-intercepter being produced in quantity for the Army Air Corps is a high-altitude fighter supercharger equipped, and gets peak efficiency at sub-stratosphere altitudes. Republic's contract is for $56,500,000, the largest single order for pursuit planes ever placed by the U. S. government. The P-43 is powered with a Pratt & Whitney R-1830-35 1100-h.p. Twin Wasp. Armament includes both 30 and 50 caliber wing guns, fragmentation bombs and other special equipment. The single-seater is entirely flush riveted.

Lower Right: Glenn L. Martin's powerful B-26 is now undergoing final tests at Baltimore. A super-streamlined medium bomber of semi-high-wing design with a tricycle landing gear, it represents the single important type the Martin Company will manufacture for the Army. Powered by two 18-cylinder, 1,850-h.p. Pratt and Whitney engines driving two four-bladed propellers, the Bomber has a gross weight of 26,625 pounds and carries a normal crew of five. Another important Martin type, the PBM, is being manufactured for the U. S. Navy.

3,000,000 passengers over 37,000 route miles in the United States and over 45,000 route miles operated by our home-owned foreign services. The increase during 1940 over the preceding year in passenger business was 46 per cent, in air mail 20 per cent and in air express 15 per cent. Passenger miles increased 62 per cent over 1939.

As of June 30, 1940, there were 398 commercial air liners in service with a total seating capacity of 8,968 or in excess of 10,000 for emergency purposes.

The year 1940 saw the establishment of a few new routes and several extensions of existing routes. These included: St. Louis to Nashville via Evansville; Minneapolis-St. Paul to Duluth; Norfolk to Knoxville; Minneapolis-St. Paul to Kansas City and St. Louis via Des Moines; Oklahoma City to Amarillo; Houston to Memphis via Shreveport; St. Louis to Louisville via Evansville. Two more significant new routes were established between Seattle and Alaska and between San Francisco and Auckland, New Zealand.

The domestic airlines will require about 400 more transport planes by the middle of 1942 for moderate expansion and for replacement. The Commercial Aircraft Priorities Committee (appointed by the Priorities Board of the National Defense Advisory Commission) has requested the

airlines to furnish the Air Corps certain new engines recently delivered to airlines to assure immediate completion of additional combat aircraft. The committee announced a decision providing for a program to be developed in co-operation with the airlines and manufacturers which will permit release to military services during 1941 of approximately seven and one-half million dollars' worth of equipment, part of which the airlines expected to use in expanding their services. At the same time the committee decided that temporary preference delivery instructions are to be issued to airplane and engine manufacturers which, while expediting equipment for military use, will also assure maintenance of *present* services and *normal replacement* of existing equipment.

This third proviso seems to indicate that the boys up at the top fail to appreciate the importance of our airline system to national defense by "freezing" the lines to their present stage of operation. Would not an expansion of our civil (lighted) airways, the construction of many new intermediate fields, radio communication stations, radio directional beams, teletype circuits and maintenance facilities, and putting more airliners to work over this enlarged network, be an integral part of our national defense program? Commercial aviation has helped keep our manufacturers going, has contributed to improvement in design and operation technique and produced skilled workmen, new and valuable tools and the best maintenance procedure in existence today. After the demands for military craft have been supplied, the only cushion we'll have is commercial and private aviation. To curb either for the doubtful benefit of military aviation is rank folly. Furthermore, it's silly to suppose that the small amount of airline equipment in the process of production can interfere with the huge military program. The airlines, it must be remembered, are qualified to supply a particular type of valuable specialized training to our military pilots without interrupting established operations. More routes, more schedules, more transport airplanes flying increases this facility.

Like the railroads and trucks, the airliners that ply the skyways day and night are an important element in national defense, particularly now in the rush for preparedness when it is necessary to transport men, mail and equipment more swiftly than ever before to every nook and cranny of the nation. An expanded air transport system after the present pattern alone can provide that fundamental service.

Non-Scheduled Civil Aviation

THERE is not much chance of anything developing to cause a priority question affecting civil type airplanes in non-scheduled and private aviation, unless the manufacturers now engaged in this production are given military contracts during the new year and this doesn't seem likely.

Right now, the big question mark hovering over non-scheduled civil aviation is whether the Civilian Pilot Training Program will be continued after next June. (See SOUTHERN FLIGHT, December, 1940, p. 8, "What About the CPTP?"). This program began as an experiment in February, 1939, with 330 students in 13 colleges. That year funds were provided for an expansion to 10,000 students trained between July 1, 1939, and June 30, 1940. Shortly afterwards, Congress authorized funds for training 45,000 students between July 1, 1940, and June 30, 1941. In this latter program the first phase of the preliminary college training took place at 495 centers with 15,413 enrollees, of which there were 13,288 completions in the fall. Participating in this phase were 1,972 airplanes, 530 flight operators, 460 instructors and 435 airports.

In the secondary college phase of the summer session, there were 91 training centers participating with 1,170 trainees; and there were 910 completions. This phase utilized 181 instructors, 93 flight operators, 173 aircraft, and 98 airports.

The non-college summer session was conducted at 197 training centers, with 1,963 enrollees. A total of 270 instructors and 194 flight operators participated. Four hundred and thirty-nine aircraft, and 185 airports were employed.

The fall session of the 1940-41 program currently is in progress, training being given for the private (formerly preliminary) course at 703 colleges with a total quota of 15,480 students. A total of 1,357 instructors, 675 flight operators, 2,416 aircraft, and 586 airports are participating. The fall session Restricted Commercial (formerly secondary) course is being given at 205 colleges, with a quota of 3,100 trainees. The non-college phase is being given at 202 centers, but statistics on the total number of enrollees are not yet available. These trainees are scheduled to complete their instruction by January 30, 1941.

In addition, the CPTP has a continuous program for the training of apprentice instructors, and offers primary instructor, advanced instructor, and commercial refresher courses. During 1940 the program gave apprentice instructor training at 72 centers to 720 enrollees; advanced instructor training at 132 centers to 3,223 trainees; and commercial refresher courses at 73 centers to 1,280 pilots. No figures are available on completions for these courses.

The CPT Program already has fed more than 2,600 of its trainees to Army and Navy air training centers. These figures include only those students who late in 1940 were in military training or definitely had been accepted and were awaiting orders to report. Flight centers reported an additional 677 who had applied for military aviation but had not yet been accepted.

It doesn't require much imagination to realize what these figures prove and what the program means to civil aviation and national defense.

APPROXIMATELY 6,750 civil type airplanes were produced in 1940, or nearly twice as many as were produced during 1939. The greatest gain was in the light plane category (due largely to the impetus of the CPTP), which accounted for 3,031 units during the first three quarters of the year. Production during 1941 should easily reach 10,000 units, especially if the CPTP is continued and military priorities are not put into effect. With that kind of volume a new and wealthy market is opened up, guaranteeing a healthy boom in private flying activity, and profitable fixed-base operations in every section of the nation.

Non-scheduled civil aviation still hides its head in shame when the safety figures and accident reports come out. An intelligent fear is growing that unless these statistics improve and greater safety achieved, the already bad record will prove a boomerang to private flying growth. Stricter control of students by instructors, improved instruction methods, better maintenance and more stringent enforcement of civil air regulations may be expected because those who see the handwriting on the wall are of a single mind—slice the fatalities and accidents in civil aviation in half while doubling the non-scheduled miles flown. Everyone knows it is possible; but doing it is something else.

Airports and Hangars

UNCLE SAM appropriated $40,000,000 for improvement and construction of some 250 airports during 1941 despite the fact the CAB requested $80,000,000 as the first part of a $560,000,000 program to be spread over

a six-year period. All of the money will go for actual landing facilities, none for sorely needed hangars. Hence it will be necessary for municipalities or State governments to provide funds for hangars and other buildings.

In 1940 the WPA, other Federal agencies and local sponsors spent nearly $55,000,000 on airports. During 1941, the CAB, operating under the first clear Federal statement of policy towards airport construction, will direct the spending of the new appropriation. Only airports deemed of national defense value will be included in the program.

Shortage of hangar space is already alarming. That means it will be up to local aviation interests to see that the situation is corrected by home-remedy methods.

At the end of 1940, it was estimated that there were 2,339 airports in the United States, which compares with 2,280 a year before. A breakdown of this estimate shows the following classification by types: 709 municipal airports; 492 commercial airports; 284 CAA intermediate fields; 69 Army airdromes; 22 Naval air stations; 633 marked auxiliary fields; and 130 private fields.

Federal Airways

BY next July there will be 32,012 miles of adequately-lighted airways, fully equipped with radio, communications and weather-reporting facilities. Two static-free ultra-high-frequency radio stations were in operation as of the first of the year, 114 fan markers and one instrument approach system. By July we expect to have 10 range stations, 157 fan markers and nine instrument-approach systems. For the transmission of weather information there were in operation on January 1, this year, some 28,050 miles of teletype circuits. By next July this total should reach 55,456 miles. Teletype traffic-control mileage now is 12,260 miles, with 18,255 expected by July 1.

Research

IMPROVEMENTS of the National Advisory Committee for Aeronautics laboratories at Langley Field, Virginia, establishment of a new laboratory at Sunnyvale, California, and the construction of an engine research laboratory at Cleveland highlighted research developments during 1940. Two more major research centers are sorely needed, particularly one located somewhere in the Middle West.

The CAB's technical development program included work on ultra-high-frequency radio range communication facilities, direction finders, instrument landing systems (RTCA and Metcalf), traffic control, special charts for instrument flying, fire hazards, destructive flutter, and airport soil stabilization.

The fact remains that scientific aeronautical progress begins in research and that the facilities of the United States are pathetically inadequate for the industry's needs. There is a small ray of hope that the present emergency will drive this point home and that research facilities commensurate with our national defense needs will be undertaken during 1941 without further tragic delay.

Just Among Ourselves

(Continued from page 6)

The organization machinery of NATA is especially adaptable for unison and effective group action because the Nation is split up into seven geographical regions, each with a regional governor who also serves on the national board of governors. The regions are made to correspond with the seven Civil Aeronautic Administration regions, providing a splendid background for close co-operation between operators and the CAA. That will be necessary if the CPTP is to be perfected to the point every interested person wants to see acheived. It will permit closer co-ordination with colleges and universities and consequently the constant opportunity for an interchange of good ideas and for working towards more effective flight and ground training procedure. Finally, through organization we think the chances for making aeronautical courses a permanent part of the curricula in the colleges and universities will be far greater and if the CPTP should be discontinued at the end of the fiscal year next June, think what this one accomplishment alone will mean.

It's a trite old saying but too, too true. "God helps those who help themselves". The Nation's fixed-base operators once again have the chance to help themselves, to increase their income, to become more progressive "aviation merchants", to make plans for a brilliant future in the flying business, to build strength both locally and nationally, and most important of all, to be a part of an organization of their own people banded together for self-protection and self-preservation against the forces that would see them relegated to an uncomfortable back seat that far too many have gotten used to sitting on. NATA offers the opportunity. The next two months will tell the tale.

THESE MEN WILL HELP GUIDE THE DESTINIES OF THE NATIONAL AVIATION TRAINING ASSOCIATON

Left to right, front row: James W. Batchelor, Durant, Oklahoma; Bertrand Rhine, Los Angeles; O. P. Herbert, New York City; William Ong, Kansas City. Back row: A. A. Bennett, Idaho Falls, Idaho; Roscoe Turner, Indianapolis; and Wes Raymond, Macon, Georgia. Batchelor, Rhine, Bennett and Raymond are members of the board of governors. Ong is president and Turner is vice president. Not shown in the group are Les Bowman, Fort Worth, vice president; John Bennett, Louisville, treasurer; and Clarence Mooney, Kansas City, secretary. (Photo courtesy Aviation Credit Corporation.)

THE Sky's the Limit

BY BILL GREEN

Sick Airplanes . . . Aircraft Plants For The Middle West . . . The Crying Need For Ground Facilities . . . Flying After Dark . . . Freezing Our Airlines . . . A Call For Suggestions

DON'T FLY A "SICK" AIRPLANE

THE Civil Aeronautics Journal for December 1, 1940, carries quite a plea to pilots everywhere not to fly "sick" airplanes. Sicknesses mentioned run the gamut from failure to maintain a proper reserve of fuel, failure to correct conditions revealed in line inspections, collections of moisture on engine parts due to being left in the field overnight and uncovered, improper wiring connections, on through to tears or strains in the surfaces, misplaced pins here and there. Pilots are cautioned to check cabin heaters and exhaust manifolds for leaks to insure against carbon monoxide fumes entering the cabin and to make sure that ice or moisture has not been allowed to accumulate at any point on the airplane before flight. We agree thoroughly with the C. A. B.'s idea that airplanes, when sick, should be treated like sick people. They should not be made to work until they are well.

We also heartily congratulate the C. A. B. for including a concise and comprehensive report on various recent accidents. There can not be too much publicity among flying people on these useless accidents, most of which are caused by plain negligence or failure to observe simple rules and regulations. Perhaps the reckless pilot has one life and it is his to do with as he pleases; but too often we find them taking an innocent by-stander along when they "go west".

There is an increasing number of accidents involving student pilots carrying passengers. Why can't each instructor impress on each student pilot the fact that he can not legally and must not carry passengers until he has his license?

MIDDLE WEST'S PART IN NATIONAL DEFENSE

THE War Department has assigned tremendous airplane assembly plants to Kansas City, Omaha and Tulsa. Coupled with the gigantic North American Aviation plant now rapidly nearing completion at Dallas, this action gives convincing evidence of the long-range view of the Government towards the present war and our national defense policies, and indicates that the mid-west is especially suitable for national defense projects in view of its invulnerability to attack and its excellent climate and working conditions.

With Curtiss-Wright, Beech, Cessna, Stearman and Spartan already engaged in national defense production for the Army, Navy and Britain, as well as taking care of their normal commercial and private customers, there is a major boom in aviation in this part of the country. This writer just returned from a trip through Beech and Cessna factories where he saw considerable evidence, even though they are not yet entirely in high gear, that they are rapidly reaching volume production. On landing at the Wichita Municipal Airport we saw several Stearman airplanes take off in formation for delivery to the Navy. Army and Navy Stearmans were seen in great profusion near the Stearman factory. Spartan is under way on a Navy contract for training ships, having recently enlarged its plant to more than double its former capacity.

THE FUTURE?

WE attended a Chamber of Commerce meeting recently, in which there was agitation for a third airport for our home town, Tulsa, Oklahoma. With the advent of Army primary training (and this applies to many other cities in the United States) the Municipal Airport has become many times more crowded than formerly. Storage is at a premium everywhere. In many cities we have visited recently our airplane had to sit outside as there was absolutely no hangar space available. The number of airplanes has increased enormously, and with the CPTP proceeding at a rapid pace, there is a great deal of student activity on almost every airport. In Tulsa, three new hangars have been erected within the last year on the two airports we already have and all of those hangars are now comfortably full. Sometimes airplanes sit out at night.

Now comes the question of how much traffic an airport can bear. Opinion has been expressed that airport traffic is not dependent upon the size of an airport, nor upon the hangar space available, but rather upon the number of airplanes actually in the air over or near the airport at any particular time. We have had collisions between students around Tulsa. We know of fatal collisions in other cities between students and between students and commercial ships and between Army ships engaged in maneuvers. It is all right to say that collisions may be avoided, but the truth of the matter is that with many airplanes in the air simultaneously and at the speeds at which we travel and with the limitations on visibility we sometimes have and with the requirements a pilot has to meet in order to approach airports, namely and to-wit: tune his radio equipment, operate the transmitter and receiver, manage the airplane, get the wheels down, change the propeller pitch, etc., etc., ad infinitum, one is extremely busy and sometimes forced to take his eyes from the horizon to inspect his equipment inside the ship. Airplanes approach each other sometimes with a speed of 300 or 400 miles per hour. That means that the ship you saw a minute ago two or three miles away is now right in front of you. A pilot may be able to watch one or two airplanes, but with each additional airplane in the air to be watched, his ability to keep perfect track of them is reduced correspondingly.

As a result of this discussion, the question arose as to whether Tulsa should attempt to sponsor a third airport, which in turn brings up the question of whether Tulsa can afford to maintain three airports. Possibility exists that the Army work will be discontinued at the end of one or two years. The civilian pilot training program will also eventually be discontinued. Then what? Would there be sufficient traffic and use of the airport facilities to enable them to keep in successful operation?

To us it seems that we have to look into the future and make up our own minds about what is likely to happen. This is the way it looks to us: First, the number of student permits, private pilot licenses and commercial pilot licenses have increased from 26,000 active licenses in 1938 to over 100,000 now in active statue. The number of airplanes has tripled. All right, nothing can convince us that a change in the Army program or the CPTP program or any other of the nationally sponsored arrangements is going to stop the tremendous boom in private aviation. Of course, a national crisis, such as the debacle of 1929, might make a great many people unable to continue to operate their airplanes; however, they would sell them to someone who would continue the operation. Airplanes, especially the great many light airplanes we now have, can run as cheaply as an automobile and somebody is going to fly those airplanes. Somebody is going to pay hangar rent, mechanical upkeep charges, etc. Now we are training more pilots every day. The Army, Navy and CPTP have trained so many pilots that we could not build enough airplanes for them in ten years at our present rate. Don't tell us that these pilots are not going to want to continue to fly even at their own expense. We believe they will. We believe that every city will need not just one airport, but will need two or three or five, even, in the next few years. What would you do in your town if you only had one parking lot or one garage? With the boom we now have in aviation, the situation is comparable. We must have more and better ground facilities. The time to build them is now!

NIGHT FLIGHT

PERSONALLY, we don't often indulge in night flying. We don't believe it is as safe in single motor equipment as day-time flying. It entails numerous changes in normal handling of the airplane; it brings up new problems in navigation, flight planning, etc. However, we sometimes are forced to do it. Whenever we do fly at night we feel that the beauty of night flight is well worth any additional hazards involved. We believe that every person should at least once in his life experience those thrills and sights seen only by flying at night.

We were recently detained in Wichita longer than we expected and arrived at the airport just at black dark. A very faint tinge on the western horizon indicated that the sun had been gone for some time. Stars were shining brightly and Orion was slowly arising from his reclining position on the eastern horizon. The weather man said that Tulsa was unlimited, clear, visibility 5 miles, light smoke, temperature 53, dew point 39, wind southwest 1. That part of it was fine and from what we knew of the weather there would be no difficulties from that score, except a special report from Hatbox Field at Muskogee gave visibility 1 mile, ground fog, temperature 37, dew point 37. The question immediately arose as to whether we might possibly run into ground fog on the flight. However, the Tulsa terminal forecast indicated C.A.V.U. for the period ending at midnight. We had three hours' gas supply in the Beechcraft, which was sufficient to cruise to Tulsa and then return either to Wichita or Oklahoma City or Ponca City in the event things happened at Tulsa.

As we started the engine to taxi out to the runway the control tower flashed a green light to us and we followed a TWA DC-3 out. The field was muddy and so we went over to the runway to take off into the north. As the TWA was already on the runway, we waited for him to take off. He in turn had to wait for a Braniff DC-3 just coming in. There is a considerable thrill in sitting in your airplane, engine turning over smoothly, watching the lights of one airplane preparing to take off and another one preparing to land. Our instruments glowed dimly and it took some extra effort to read them correctly. The moonglow lamp did not show on all the instruments and did not illuminate our radio dial, which made it very difficult for us to tune in the different radio stations we expected to contact en route. Braniff finally landed and TWA got off and we taxied down to the end of the runway, rev'd up our engine, tried to see that everything was O. K., turned around, got the green flash from the control tower, poured the coal to it and started down the runway. One landing light was sufficient to illuminate the runway so that we could stay on it for the brief space until we were in the air. Instantly the lights of Wichita unfolded beneath us and we climbed until we had a thousand feet, then banked to the left, circled the airport and started out for Tulsa.

Within eleven minutes we were over Winfield and could see lights of towns all around us. Two minutes later, however, there was just a trace of lights on the horizon and nothing but a big black hole in front of us. We had already proved our compass course, however, by arriving over Winfield exactly as we should have, so we kept boring ahead into the blackness. A little oil from the propeller made the windshield just slightly oily and gave an appearance of fogginess around all the lights we saw directly ahead.

You can see great distances at night sometimes and before long, to the right of our course, we saw a green flashing beacon which we thought to be Tulsa, since there was no other lighted airport in the whole region except

(Continued on page 16)

ED C. (UNCLE ED) NILSON

Last month we reported the arrival of Ed Nilson at CAB Fourth Region Headquarters and his taking over the duties of CPTP superintendent in the region. A native of Missouri, Uncle Ed learned to fly during the last world war, spent most of his life in Florida where his keen interest in private flying and successful fixed-base operations won him national fame. He is the "Big Scaley" of the Flying Alligator Club, an organization of people who have to fly over 100 miles of Florida swamps in order to qualify for membership. Uncle Ed and his charming wife, Dorothy, have taken up residence in Fort Worth but expect to be out in the region most of the time calling on operators.

NEW EQUIPMENT REVIEW

RYAN ST-3 TRAINER

FEATURING a choice of four different engine installations, important structural changes for improved efficiency and roomier cockpits with Army-type adjustable seats, Ryan's newest trainer is a commercial version of the military model now being built in quantity for the Air Corps.

The fuselage is 14 inches longer and 3 inches wider than previous models and the tread of the landing gear has been increased by more than a foot by use of knuckle-type wheel mountings instead of the fork-type used on previous models. Other improvements include a 4° 10′ sweepback. Windshields have been changed to the three section military type. The rudder has been slightly altered to include the tail cone fairing as an integral part of the surface. A baggage compartment, accessible from the exterior, is located behind the rear cockpit. Machined castings and forgings have replaced welded members as far as possible and built-up aluminum alloy structures have superseded numerous welded steel tubular units.

The four engine installations available are the 125 h.p. Kinner B-54 five-cylinder air-cooled radial, the R-54 160 h.p. Kinner, the D-4 Menasco 125 h.p. in-line engine and the C4-S 150 h.p. Menasco.

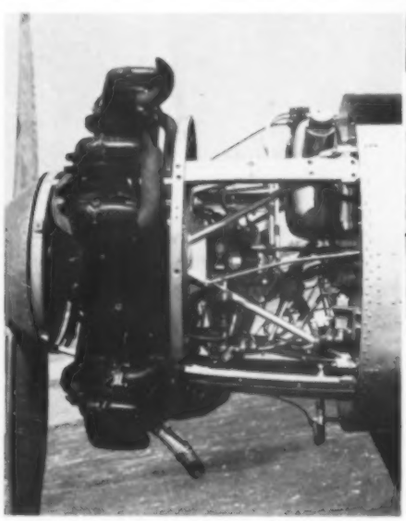
The fuselage remains of the all-metal, monocoque, stressed skin type. It is 39 inches high and 29 inches wide at the cockpit stations. Skin employed is of .032 gauge of flat unformed sheet. Ample reinforcement at the cockpit cut-outs is obtained with stamped hat section aluminum alloy exterior longerons. Heavy floor members are employed for the attachment of seats and controls. Adequate crew protection in case of nose over is provided by a steel post forward of the front cockpit.

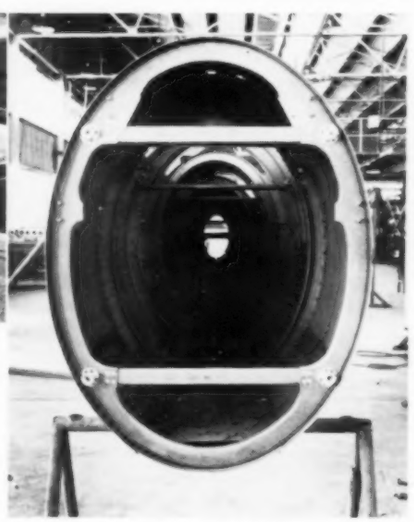
Fiberglas, which is cloth spun from pure glass, is used for the first time as airplane covering. Watching the demonstration of its flame-resisting qualities is C. G. Taylor, president of the Taylorcraft Aviation Corporation, and Chief Test Pilot James Da LeLudwig, who flew the experimental "Taylorcraft."

PERFORMANCE SUMMARY

	KINNER 125 HP	KINNER 160 HP	MENASCO 125 HP	MENASCO 150 HP
Maximum Speed—Level Flight (Sea Level)	120 MPH	129 MPH	126 MPH	136 MPH
Cruising Speed	109 MPH	120 MPH	115 MPH	122 MPH
Rate of Climb—Full Power—Full Load (Sea Level)	635 FPM	850 FPM	620 FPM	830 FPM
Range—Full Load	312 Miles	266 Miles	345 Miles	309 Miles
Time of Climb to 3,281 Ft.—1,000 M.	5.5 Min.	4.3 Min.	6.1 Min.	4.1 Min.
Time of Climb to 6,562 Ft.—2,000 M.	13.5 Min.	9.8 Min.	13.8 Min.	8.8 Min.
Time of Climb to 9,842 Ft.—3,000 M.	26.4 Min.	18.5 Min.	26.7 Min.	14.9 Min.
Time of Climb to 10,000 Ft.—3,048 M.	26.9 Min.	18.8 Min.	27.0 Min.	15.4 Min.
Service Ceiling—Full Load	12,900 Ft.	15,800 Ft.	12,900 Ft.	18,000 Ft.
Absolute Ceiling—Full Load	15,500 Ft.	18,300 Ft.	15,600 Ft.	20,400 Ft.
Take-off Run (5 MPH Wind) (Sea Level)	610 Ft.	480 Ft.	610 Ft.	520 Ft.
Landing Speed—Power Off (Sea Level)	56.4 MPH	57 MPH	56.4 MPH	57 MPH
Endurance at Operating Speed	2.86 Hrs.	2.22 Hrs.	3.0 Hrs.	2.4 Hrs.

PERFORMANCE FIGURES SUBJECT TO PLUS OR MINUS FIVE PER CENT.





DETAIL PHOTOS OF THE RYAN ST-3 TRAINER

Left: Cowling removed, showing the Kinner engine installation. Center: Landing gear with fairings removed on left unit to show detailed construction. Note the long stroke oleo universally supported strut. Right: Fuselage is of the all-metal, monocoque, stressed skin type.

Here is a very simple idea that makes for efficiency and lower costs —the use of "Cellophane" bags for small machine parts. Warner & Swasey are using the system. Bags are made by the Dobeckmun Company of Cleveland.

Employees of the B. F. Goodrich Company working on fuel tanks for combat airplanes in which rubber linings and coverings provide rapid sealing of holes caused by machine gun fire. The company has more than $2,000,000 in orders for these linings.

FIBERGLAS WING COVERING

A GLASS cloth product of the Owens-Corning Corporation has been used with satisfactory results on a new Taylorcraft's wings and has led to the prediction by Taylorcraft executives and engineers that the cloth will find widespread use because of its fire resisting and weight saving qualities. The cloth can also be used on the fuselage.

Fiberglas is said to have an extremely high strength-weight ratio. It does not shrink or stretch in the presence of moisture, nor is it affected by sunlight or temperature changes. Since it will not soak up impregnating materials, less dope is required by the product than by the conventional cotton or linen materials.

As a fabric woven entirely of pure glass in fibrous form, the material can be impregnated with incombustible dopes to provide an airplane potentially firesafe in flight and on the ground.

In the test flights a stock Taylorcraft De Luxe Model was used. James D. Ludwig, chief Taylorcraft test pilot, did the testing.

GOODRICH BULLET-SEALING TANKS

THE B. F. Goodrich Company has announced the production of a new type fuel tank capable of sealing holes caused by machine gun fire. Orders for more than $2,000,000 have been received by the Company for their new tank linings during the past two months for installation in combat airplanes. Both linings and coverings are employed by the new technique to prevent gasoline wastage and consequent forcing of the airplane out of action by machine gun fire.

DUFF-NORTON JACKS

THE Duff-Norton Manufacturing Company, Pittsburgh, Pa., has developed a number of special lifting jacks for "streamlining" airplane maintenance.

These airplane jacks are easily moved from place to place, and can quickly be spotted. Sturdily built for continuous heavy duty, they are safe, positive acting, reliable and most economical, the manufacturer states.

To adequately serve various types of planes, Duff-Norton jacks range in capacities from 5 to 20 tons. Operating mechanism of smaller jacks consists of a screw which turns in a bronze nut, thus raising and lowering the load. These jacks are manually operated.

For heavy transport planes, 20-ton jacks are used and are operated either electrically or manually. For manual operation, the Duff-Norton Self-Lowering Governor-Controlled Jack has been modified for airplane use.

The head of the Duff-Norton Airplane Jack swivels on its standard, and is spotted on the under surface of the wing. This swivel action distributes the load, preventing uneven pressure on the wing when the load has been applied.

HEATH "LIFETIME" WINDSHIELD

LIGHTPLANE pilots will be interested in a new "lifetime" replacement windshield now offered in several models by the Heath Company, Benton Harbor, Michigan. According to the manufacturer, the .060 plastic material used is non-inflammable, does not crack, check or discolor, and is not affected by gas or oil. It is said to last the lifetime of an airplane and should prove of special advantage in the South and Southwest where intense sunlight renders ordinary windshields unfit for service within a few months. The complete windshield assemblies include cork seal, installation rivets and rubber molding, and are available for a dozen different models of light aircraft.

One solution to the knotty hangar space problem now plaguing many operators is the Uniley "Hangar-Space-Saver" consisting of three rubber wheeled cradles into which light airplanes are easily nested by two men and moved to storage position. Three ships can be "stacked" in the same area required to hangar an airplane in normal position.

The Sky's the Limit

(Continued from page 13)

the emergency field at Stroud, Oklahoma. As soon as we were headed toward that green light, however, our compass course was so much different that we knew it could not be Tulsa and it had to be Stroud although it was about 60 miles from us. We came back to our original compass course and kept going ahead and a few minutes later picked up the lights of Pawhuska right on our course. Because of the smoke of Tulsa we could not see the city's lights until we were about half way from Pawhuska there —some 20 to 25 miles actually. The air was smooth and over the dark Osage hills it seemed that we were hung on an infinite cable from the sky. Nothing moved, the plane sat as solid as your easy chair at home and except for the noise of the engines the feeling was one of greatest peace and tranquility. However, we knew what was at the bottom of that black pit and it was none too reassuring and nothing helped except putting infinite faith in Mr. Jacobs and Mr. Beech and their henchmen. At one time we could count the lights of 20 cities spread around the horizon in front of us.

Tulsa at night is one of the most beautiful sights we have ever seen. It is spread out for miles on both sides of the Arkansas River, and its long, straight avenues, with many neon signs, gives it the appearance of a Christmas decoration scheme. We have seen it a number of times at night and never fail to get a great thrill at the beauty of it. It looks like a sparkling mass of varicolored jewels with scintillating lights flashing upon them here and there. Such a sight may not be seen any other way. Circling the town lets you see down first one long lighted avenue after another, and moving with relation to the trees, buildings, etc., gives you one after another changing picture of the whole. We had a passenger we wanted to show the sights to and he was visibly impressed, even in the darkness. We picked up the airport beacon lights, circled, the boys turned the flood lights on for us, and we came in to a very gentle landing almost as good as we make in the daytime when nobody is looking. Strangely enough, our engine, which had been turning over like a sewing machine in the air, immediately developed a miss on the ground and it sounded like about three of the cylinders weren't even working any more. It also sounded like the crankshaft was about to fall out. Probably nothing is wrong with it but it always makes you sit up and think.

While we recommend that every pilot fly some at night, to those younger fellows who have not had much experience at that sort of thing, we offer a word of caution. Please consider everything thoroughly. See that your lights are working, that you have plenty of gas, that everything is in good shape on the airplane and the first two or three times take an older hand along with you. Things are entirely different at night when you can't see. Only experience will enable you to offset the numerous disadvantages of darkness with sufficient technique and caution to bring you in safely. Above all, don't start off for another place without being sure that the weather is perfect for your first few times. After that, the chances are you will get enough experience and common sense so you won't start off without being sure. There is nothing as bad as getting in a jam after dark. Take it easy, pal.

WHAT DO YOU THINK ABOUT IT?

IN chasing around the country we run into quite a few people who read this column and express an interest in what we have had to say. We have been well pleased at the comments, yet many times we have felt that we might be falling short of what we hope to do and what people expect of us.

That's where you readers come in. Why not write us a letter telling us how you feel on any subject in which you are interested and perhaps we can get up a lively discussion through the medium of this column. Do you have any complaints, any suggestions, any ideas? Do you want anything done that isn't being done now for aviation? We will appreciate letters on practically any subject connected with aviation and will be glad to publish some of the more interesting ones intact.

We are looking forward to hearing from you soon.

Mr. Sikorsky Made it Work

(Continued from page 7)

while the other two are at right angles to the centerline and revolve in a horizontal plane. These elements take the place of the ailerons, elevators, and rudder of the conventional airplane, and the effects of the latter controls are duplicated by merely changing the pitch of the auxiliary rotors.

The main lifting force of the VS-300 helicopter is derived from the main rotor, composed of three blades of 14-foot radius. The magnitude of the lifting force is varied by changing the pitch of the blades of the main rotor.

Thus the main rotor provides the forces necessary for ascent, descent, hovering, or level flight, and the direction of flight is governed by the auxiliary rotors. By using these latter to slightly tilt the helicopter in a certain direction, flight in that direction is achieved.

A 90-horsepower air-cooled engine, located near the center of gravity of the helicopter, supplies the power to drive the rotors. Most of this power is transmitted to the main rotor by belts, while the auxiliary rotors receive a small amount via a drive shaft and belts. The auxiliary rotors each have a diameter of 7½ feet, are lightly loaded, and rotate approximately four times as fast as the main rotor.

The Vought-Sikorsky helicopter has three necessary flight controls: the control column or stick, the foot pedals, and the main pitch control lever. There is considerable advantage in this arrangement because it calls for none other than normal airplane flight reactions on the part of the pilot.

For example, moving the control column from side to side differentially changes the pitch of the two horizontal auxiliary rotors, causing a lateral reaction similar to that produced by the ailerons of a conventional airplane. By moving the control column forward and backward, the pitch of the horizontal auxiliary rotors is changed to bring about a longitudinal action similar to that of elevators. Rudder action is achieved through the foot pedals, which vary the pitch of the vertical auxiliary rotor. This rotor serves two purposes, that of changing the direction of flight and of counteracting the torque of the main lifting rotor.

The controls for the main lifting rotor and the horizontal auxiliary rotors are synchronized with the engine throttle.

A GREAT advantage of the control system employed in the VS-300 helicopter—compared with that of the conventional fixed-wing airplane—is that the feel and effectiveness of the controls never vary, regardless of the attitude of the machine, since the control surfaces are always rotating at rates far in excess of their stalling speeds.

The lift and control system of the Vought-Sikorsky helicopter has the added advantage of simplicity, and it is believed that this offers possibilities of inexpensive production and easy maintenance.

In fact, the helicopter in the form of the VS-300 presents no unusual manufacturing difficulties, even from the standpoint of mass production, according to Mr. Sikorsky.

YOUR INDUSTRY

NEWS OF THE MONTH IN REVIEW

MANUFACTURERS

AIRESEARCH MANUFACTURING—Keeping pace with the sensational expansion of the aviation industry as a whole, Airesearch Manufacturing Co. will soon occupy a new plant now under construction at the Los Angeles Municipal Airport. According to W. C. Brownlee, general manager, the new factory marks the second expansion of the firm in a little over a year and represents a total increase of 300 per cent in plant area.

Occupying a 20-acre site, the new ultra modern structure of steel and concrete will provide 76,000 square feet under roof. In addition to expanded facilities for manufacturing the firm's line of heat transfer products, one of aviation's finest and most modern testing laboratories will be included. This will be a separate building of 6,000 square feet adjacent to the main structure.

BEECH AIRCRAFT—Beech Aircraft Corporation, in its recently released annual report for the fiscal year ended September 30, 1940, shows the largest volume of sales in the corporation's history, according to Walter H. Beech, president. Net sales totaled $2,345,255 and net income amounted to $68,193, after provision for Federal and State income taxes, compared with net sales of $1,328,296 and a net loss of $91,479 in the preceding year. The net income for the year ended September 30, 1940, was equivalent to 17 cents a share on the 400,000 shares of common stock outstanding.

• The RFC has announced approval of a loan of $13,540,508 to Beech Aircraft Corporation to provide plant facilities, equipment and working capital. Accelerated production is required by a backlog of over $22,000,000.

BOEING—Scheduled for delivery early next year, the first planes of a fleet of six new super-Clippers for Pan American Airways are rapidly being assembled now in the shops of the Boeing Aircraft Company, Seattle.

Designated as Model A-314's, the new Boeing super-Clippers are of the same design with the same dimensions as the earlier flying boats, but incorporate several new advancements, including greater horsepower and greater fuel capacity to give greater non-stop cruising range. The new Clippers will be powered with four 1600 h. p. Wright Cyclone engines.

BREWSTER—George F. Chapline, president of Brewster Aeronautical Corporation, has announced receipt of a Navy contract award of $15,160,501 for dive bombers. The Company has unfilled orders totaling $100,000,000 and has recently completed a naval order for F2A-2 shipboard fighters and is delivering planes of the same basic type to a foreign buyer.

• The Corporation has signed a contract with approximately 6,000 employes represented by a CIO union for the calendar year 1941. A general increase of six cents an hour to all hourly workers, a week's vacation with pay to all workers employed for over one year, and a minimum of 55 cents an hour with an automatic increase to 62 cents an hour after four months of service are among provisions of the contract.

INTERSTATE AIRCRAFT—An announcement by Don P. Smith, President of Interstate Aircraft and Engineering Corporation, revealed profits of $38,352.12, equal to 64 cents per share on 60,000 shares outstanding common stock for the first half of the fiscal year ended October 31, 1940. This statement is made before provision for Federal income and excess-profits taxes of $12,926.58, and compares with earnings of $15,603.13 for the previous six months, or 26 cents per share.

Concurrently with the announcement of profits, Mr. Smith announced that production has begun on the Interstate Cadet, with delivery of the first twenty production airplanes during December.

LOCKHEED—Announcement has been made by Robert E. Gross, president of the Lockheed Aircraft Corporation, that at a meeting of the board of directors it was voted to declare a cash dividend of $1.50 per share on the 1,000,000 shares outstanding.

• A final and most satisfactory solution to the long-standing problem of the location of a home for the 115th Observation Squadron of the California National Guard appeared near with the announcement released by Robert E. Gross, president of the Lockheed Aircraft Corporation.

As a result of conferences held with Major General Henry H. Arnold and Brigadier General Oliver P. Echols, the company has offered

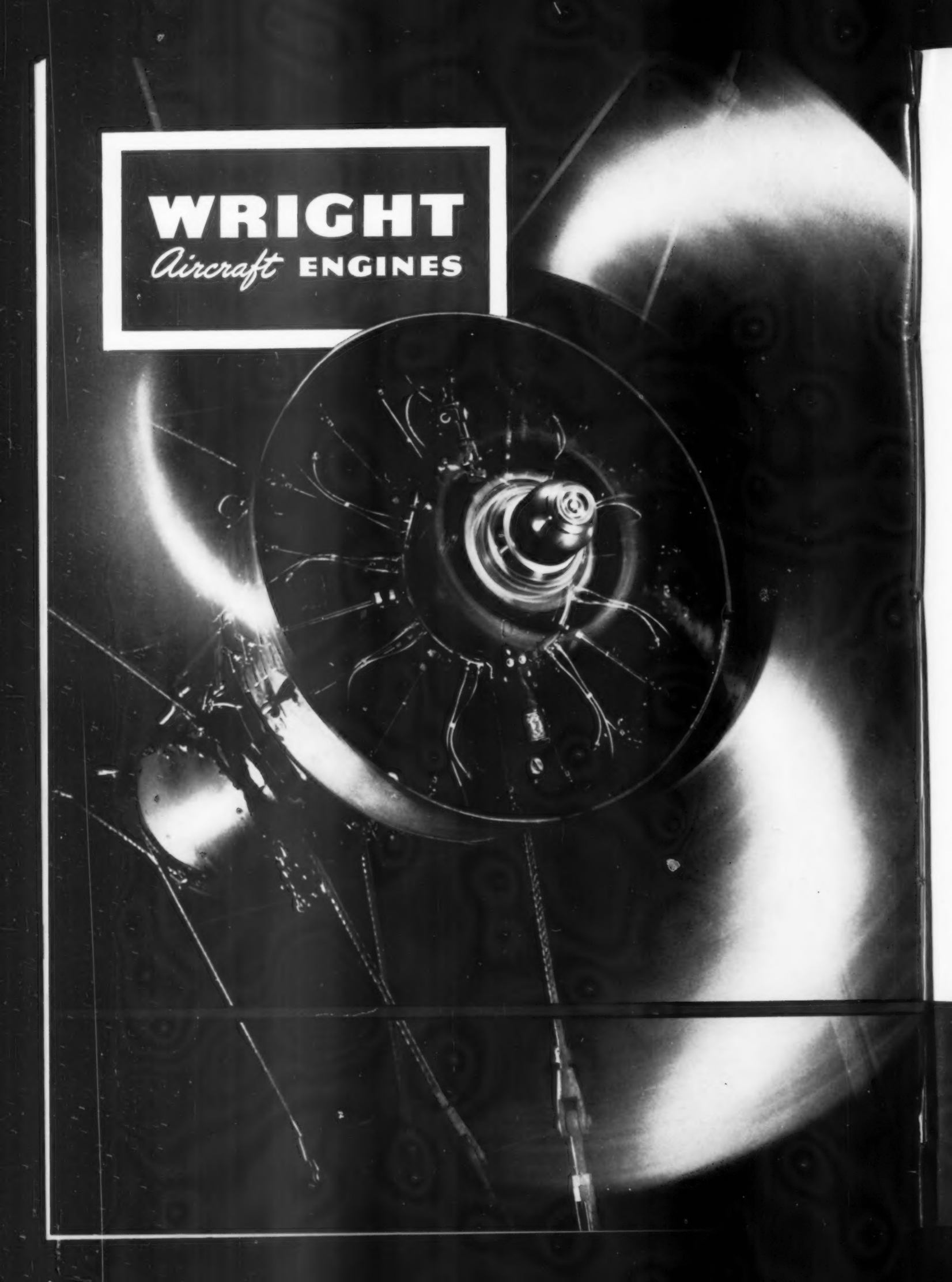
(Continued on page 20)

Burton G. Griffin, right, being congratulated by Wing Commander James R. Addams of the R.A.F. for his original idea of Lockheed and Vega employes giving a Lockheed Hudson Bomber to the people of England as a Christmas present. More than 17,000 workers contributed their time to the production of the Bomber. Jimmy Mattern flew the ship to Canada for delivery on Christmas day. The Pioneer Parachute Company workers donated the complete parachute equipment.

For expert parachute packing, call us at 58-6141. Humidity-controlled drying room. Distributors for Pioneer parachutes.

DALLAS AVIATION SCHOOL

LOVE FIELD **DALLAS, TEXAS**


WRIGHT
Aircraft ENGINES

IN 1941

Six WRIGHT PLANTS RUNNING 24 HOURS A DAY *for Defense . . .*

WITH manufacturing facilities trebled in the past year, the output of Wright Cyclone and Whirlwind engines is rapidly reaching the proportions demanded for an effective National Defense. Nearly 3,000,000 sq. ft. of factory area are now in use day and night. By mid-year the addition of the new Cincinnati plant will have increased this area by 50% to an aggregate of 4,500,000 sq. ft. . . . 110 acres of men and machines!

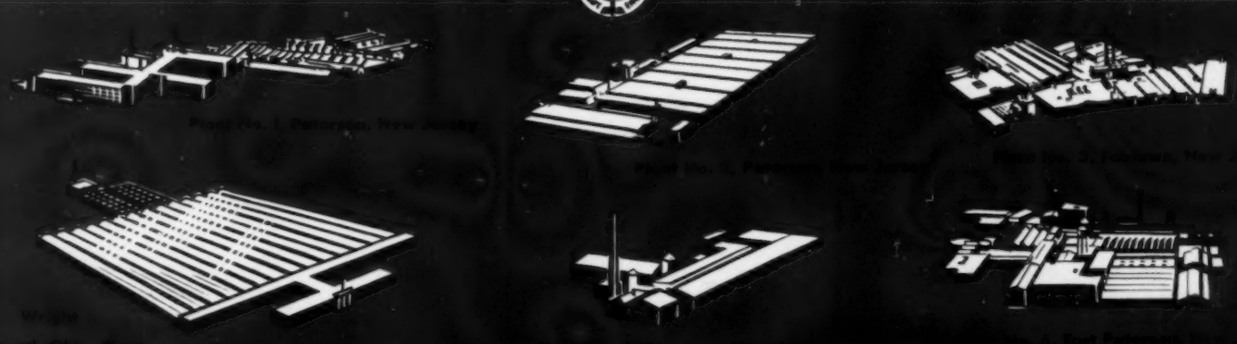
Such expansion is not a matter of buildings alone—an extended program of employee training has made possible the manning of new plants as fast as machines and facilities were available . . . new and improved equipment has been developed for faster and more accurate production . . . millions of parts must be completed on schedule ready to work with equal precision and efficiency in any engine assembly . . . no concession to quality is tolerated anywhere in the tremendously accelerated program . . . all this has taken time, study and coordination of the closest sort.

Wright has enlisted its fullest resources to provide a large part of the power required for the Defense Program and the months spent in preparation are already justifying themselves in rapidly increasing production. When the emergency is over, Wright will be ready to serve commerce and a continuing defense more efficiently than ever.

WRIGHT

AERONAUTICAL CORPORATION

A Division of Curtiss-Wright Corporation • **Paterson, New Jersey**



(Continued from page 17)

to General R. E. Mittelstaedt, California State Adjutant General, according to Gross, to deed to the State of California ten acres of land adjacent to the southwest corner of the recently acquired Union Air Terminal in Burbank, with a provision that it be used exclusively as a base by the California National Guard Air Squadron.

Included also would be permission to the National Guard to use the necessary facilities and runways of Union Air Terminal.

LUSCOMBE— 1940 business was 100 per cent better than 1939 for Luscombe Airplane Corporation, West Trenton, N. J. Introduction of the 75 h. p. Silvaire in May boosted summer sales, while the new Lycoming 65 h. p. powered trainer, introduced in October, has helped maintain Luscombe's high percentage of sales in the low horsepower class.

J. H. Torrens, President of the Luscombe Corporation, said: "Judging from 1940 business our newly expanded facilities will be brought into action in 1941. During the past six months we have invested 150 per cent more money in new equipment than during the corresponding period a year ago. Hence our 100 per cent business increase is only a rough indication of how we expect to expand this coming year. The introduction of our low-priced Trainer has made it possible for many more CPT program operators to avail themselves of metal equipment for primary defense training. It is therefore our intention to continue to offer the best light metal airplanes at the lowest possible prices."

• Carolina Luscombe Sales Company of Clinton, S. C., has been organized to handle sales and service of Luscombe airplanes in North and South Carolina. Gastonia Aviation Service, Inc., Gastonia, N. C., has been appointed subdistibutor for Luscombe airplanes in central and western North Carolina.

GLENN MARTIN— The Directors of The Glenn L. Martin Company recently declared a dividend of $1.00 per share and a Christmas bonus to employes approximately equal to one week's pay. The bonus amounted to approximately $500,000 distributed to around 17,000 employes.

MENASCO— Ground was broken last month for the construction of a new factory unit at the Menasco Manufacturing Company's plant at Burbank, according to an announcement by A. E. Shelton, president.

This new unit will represent a 50 per cent increase in manufacturing area of the Burbank plant and will house the newly formed hydraulic strut division of the Menasco Company. Menasco is at present engaged in production on several large contracts for airplane landing gear struts, and increasing business has made this expansion necessary.

Some time ago, Menasco acquired fourteen acres of land at their Burbank address which will allow considerable future expansion.

NORTH AMERICAN AVIATION— Confirming an announcement made by the War Department, J. H. Kindelberger, president and managing director of North American Aviation, Inc., has revealed that the company has completed preliminary plans for erection of a huge airplane manufacturing and assembly plant at Fairfax Airport in Kansas City.

The new plant will be fully Government owned and will be operated by North American Aviation on a management contract basis. Comprising more than a million square feet of floor space, the building will be designed for use after the present national defense emergency as a U. S. Army Air Corps maintenance depot for twin-engine and four-engine bombers.

• The 7,218 employes of North American received a Christmas present in the form of checks totaling $281,644, despite the fact that increase in taxes and mounting costs of manufacture reduced the consolidated net profit considerably in 1940 from the 1939 figure.

• The practicability of long-range delivery flights is being proved by pilots of the Brazilian Army Air Corps who are regularly delivering a quantity of light attack-bombers built for Brazil by North American. About 55 hours of flying time is required for the trip from Inglewood, California, to Rio.

REPUBLIC— Inaugurating a new procedure in the accelerated delivery of Republic fighting planes to the U. S. Army Air Corps, AT-12 planes are now being flown away from the Republic field by Air Corps pilots.

The "fly-away" method enables new deliveries to be made as soon as the planes roll off the assembly line.

• A new plant adding $5,210,000 worth of facilities to the Republic Aviation Corporation will be constructed immediately on land adjoining the present 228,000 square-foot plant at Farmingdale, Long Island. The plant will be utilized to speed up production of Republic pursuit interceptors for the air corps under contracts of more than $60,000,000. The Company is engaged in a tremendous training program for workers who will be added to the plant's payroll. The training program provides free tuition in a top-ranking vocation school and is costing Republic approximately $1,000,000.

SWITLIK PARACHUTE— According to figures released by Kenneth W. Wolcott, sales manager of Switlik Parachute and Equipment Company of Trenton, N. J., the company received orders during November totaling nearly $400,000. These consisted of parachutes for the Army and commercial operators, flying suits, tow targets, parachute parts and safety belts.

The parachute orders included one of 200 made with Nylon for the Army. The company assisted the Army in developing Nylon for parachutes which resulted in this order.

The factory is continuing to operate at full capacity and has a back-log of over $2,000,000.

SPENCER-LARSEN — The Spencer-Larsen Aircraft Corporation announced a change in its corporate name effective January 1 to the Colgate-Larsen Aircraft Company. Gilbert Colgate, chairman of the board of Air Associates, Inc., is president. Directors of the company in addition to Colgate include Richard C. Dupont, Minton M. Warren and Major R. G. Ervin. Mr. P. H. Spencer has withdrawn from active management of the company. The company has been engaged in specialized production and has completed technical details for the production of a medium sized amphibian at the Amityville, Long Island, plant.

UNITED AIRCRAFT—A flat wage increase of 5 cents an hour has been announced by the United Aircraft Corporation. It is estimated that this move will increase the annual payroll by approximately $2,000,000 a year. The action affects all hourly-rated employes. The company paid out a total of $558,000 to employes during the year in additional wage-salary, Christmas payments and vacation-wage payments.

• The Pratt & Whitney Aircraft Division will have 3,000 new trained workers within the next three months as a result of an intense training program now going on in Hartford. Known officially as the Hartford State Trade School, Defense Training Center, the school has approximately 50 machine tools as well as classrooms, shop instructors, materials, jigs, and fixtures. It is under the direction of H. C. O'Sullivan, Training Director for Pratt & Whitney Aircraft.

WRIGHT AERONAUTICAL — The world's largest battery of furnaces for nitriding—a process which produces one of the hardest steel surfaces known to modern science—has been placed in operation by the Wright Aeronautical Corporation in conjunction with its program to increase production of Whirlwind and Cyclone aircraft engines for National Defense, according to an announcement made by Myron B. Gordon, vice president and general manager of the company.

The furnaces, which involved an expenditure of approximately $1,000,000 are housed in Wright Plant No. 2, which was dedicated on June 14 as the first American factory to be designed for the mass line-production of aircraft engine parts.

• Frank Messer and Sons, Cincinnati contractors, were awarded the construction con-

STUDENT PILOTS!

If you are interested in picking up some extra cash in order to buy more flying time, write us for an interesting deal.

Weldon M. McKinney

Southern Flight

P. O. Box 750 **DALLAS, TEXAS**

Guy Vaughan (left), president of the Curtiss-Wright Corporation, at the controls of a bulldozer with Charlie France, vice president and general manager of the company's St. Louis Airplane Division, at ground breaking ceremonies for a new plant on Lambert Field. Costing over $11,000,000, the new aircraft factory will provide 1,210,450 square feet of floor space, representing the largest plant of its kind in the Middle-west. In addition to the St. Louis plant, Vaughan has broken ground at his company's new engine plant at Cincinnati and other large airplane factories at Buffalo, N. Y., and Columbus, Ohio. When the expansion program is complete, Curtiss-Wright anticipates producing 60 military planes daily, 2,000 engines monthly.

tract for the new factory and assembly plant containing 33 acres of floor space to be erected by the Wright Aeronautical Corporation at Lockland, Ohio. Albert Kahn, Detroit architect, described it as the largest building award ever let under one contract in the United States. With approximatly 1,400,000 square feet of floor space, the entire factory will be given over to production of Wright "Cyclone" engines.

MIAMI READY

Spurred by the news that the Gulf Oil Corporation will again provide free gas and oil between December 25, 1940, and January 25, 1941, for all lightplanes of 80 horsepower or under along the routes to and from Miami, the annual Miami All American Air Maneuvers are expecting the greatest attendance in history. The event will take place at the Miami Municipal Airport January 10, 11, and 12. Free gas and oil coupon books may be had from the various lightplane manufacturers. Large "wings" or mass flight groups will be discouraged this year to prevent congestion at airports where training programs are active.

The annual flying cruise to Cuba will be repeated this year. Cuban officials said that 200 pilots would be invited to participate as guests of the Cuban Government.

The cruise to Cuba will leave Miami on January 14 with a stop at Key West before making the 90-mile overwater hop to Havana. Specifications call for planes of at least 65 horsepower making the trip.

Arrangements call for a three-day international air show at Camp Columbia near Havana. All pilots participating in the cruise will receive specially prepared gold medallions from President Fulgencio Batista.

The overwater hop will be practically fool proof with groups of American coast guard vessels and Cuban gunboats strategically stationed along the 90-mile route from Key West to Havana.

Restrictions have been removed on the annual Bernarr Macfadden New York-Miami race to permit participation of all commercially licensed airplanes regardless of horsepower. Entrants must fly the New York to Miami radio beam and in addition swoop over Jacksonville, Florida, for a visual check.

Reg. Waters, general chairman of the maneuvers, has promised the greatest meet in the history of the event and announced that an industrial display of airplanes, engines and accessories would be an additional feature of the '41 maneuvers.

SCHEDULED AIR TRANSPORT

AIR TRAVEL UP

The increase in air passenger volume during the first ten months of 1940 over the same period in 1939 was 61.42 per cent, Colonel Edgar S. Gorrell, President of the Air Transport Association of America, has announced.

Revenue passenger miles during the January-October period reached 890,525,153 as compared with 551,690,659 during that period of last year.

Revenue passenger miles flown in October were 115,474,262 or 64.44 per cent over October of a year ago when 70,221,520 revenue passenger miles were flown.

October passenger volume increased 6.39 per cent over September.

TRANSPORT FINANCE CONFERENCE

The 17 domestic airlines operating under the Air Transport Association have formed a Finance and Accounting Conference to serve as a clearing house for information on financial and accounting questions and to solve new problems facing many of the systems as a result of the rapid expansion in scheduled services. E. I. Whyatt, Northwest Airlines, Inc., was elected president; E. Lee Talman, TWA, first vice president; and Amos Culbert, Chicago & Southern Air Lines, Inc., second vice president. Fowler Barker of the Air Transport Association will serve as secretary-treasurer.

AMERICAN—For the first eleven months of 1940 American Airlines carried 810,339 revenue passengers, flew 289,816,372 revenue passenger miles with a load factor for the period of 67.8. This compares with 488,664 revenue passengers and 186,688,061 revenue passenger miles flown in the first eleven months of 1939. On December 10, 1940, American carried its 3,000,000th passenger. The company now operates a fleet of 87 planes.

BRANIFF—During the most severe ice storm in the history of Amarillo and its vicinity, a Braniff Airways B-Liner radio served the community by handling emergency messages while wire communication systems were down. A grounded Braniff plane was pressed into service by rolling it from the hangar and using its transmitter and receiver while the ship was on the ground. At one time it was the only means of contact between the Texas Panhandle and points outside the storm area.

• Braniff completed the first eleven months of 1940 with an increase of 87.8 per cent over 1939. Passenger revenue for the period amounted to $1,695,000 and 118,000 revenue passengers were carried. Personnel totals 625, daily flights 38, route miles 2,688 and miles flown daily 15,266.

CHICAGO & SOUTHERN — D. D. Walker, Vice President of Chicago and Southern Air Lines, Inc., has announced an increase of 86 per cent in revenue passengers carried for the first eleven months of 1940 as compared with the same period of 1939.

The report shows that 15,006,154 revenue passenger miles were flown during the first eleven months of 1940, an increase of 80.4 per cent over the same period of 1939 when

INSIDE STORY

of the sound design and construction of Simmonds-Benton Aircraft Power Plugs is exposed in the accompanying cut. The inside story of Simmonds-Benton's absolute dependability, efficiency and economy is told in an illustrated brochure that is yours free for the asking. Simply ask for booklet "A" addressing your inquiry to Simmonds Aerocessories, Inc., 10 Rockefeller Plaza, New York, N. Y.

*** TRIPLE TAPER SEAL (TRADE MARK) IS AN EXCLUSIVE SIMMONDS-BENTON FEATURE!

SIMMONDS-BENTON *Aircraft* POWER PLUGS

the airline flew 8,319,192 passenger miles. During the period from January 1 to November 30, 1940, a total of 39,321 revenue passengers were carried against 21,116 for the same months of 1939. This is an increase of 86 per cent.

SOUTHWEST FEEDER—With the formation of Southwest Feeder Airlines, Inc., a new $625,000 corporation financed by Eastern business men and aviation leaders, plans have been revealed for an important network of feeder airlines crisscrossing the southwest and midwest.

The corporation filed its "notice of intention" with the Civil Aeronautics Board at Washington asking for a permanent certificate of convenience and necessity to operate eight new feeder airline routes in Oklahoma, Texas, Kansas, Missouri, Iowa and Illinois.

Clinton M. Hester, attorney for the company and former CAA administrator, announced that the new routes would serve 82 cities and towns in the six-state area.

Reaction in aviation circles at the nation's capital centered around the fact that Southwest Feeder Airlines, Inc., is the first company to make application for a system and not just a route. This new approach was thought by many to be important in that the company would have sufficient mileage to enable it to conduct an economical and profitable operation. In addition, such a system would allow the company to make the fullest possible use of its equipment.

TRANSCONTINENTAL & WESTERN AIR—Inauguration of 4-engine, 33-passenger Stratoliner transport service into Philadelphia and Pittsburgh to bring the two cities an hour and a half closer by air to Kansas City and the West Coast, has been announced by Transcontinental and Western Air, Inc.

Jack Frye, president of the air line, said that schedules of the stratoliner fleet, operating fastest transcontinental flights since last summer, will be enlarged to include the Pennsylvania cities for the first time. The new schedule will be westerly only; present eastbound flights will continue.

LADDER FOR REFUELING

A new light-weight aluminum ladder designed especially for speedy and safe refueling of large transport aircraft has been announced by the Aluminum Ladder Company of Tarentum, Pa. Constructed to fit snugly against the wings of all airline transports, the top of the ladder is curved to a 7-degree radius, the inside of which is fitted with rubber padding. It weighs 13½ pounds.

• Jack Frye, president of Transcontinental and Western Air, Inc., has announced that TWA is releasing to the Army more than $2,000,000 worth of airplanes and engine equipment at the request of the government.

Frye said that TWA had agreed to deferred delivery of 13 Douglas DC-3 transports which were to have replaced smaller DC-2 type airplanes this winter. TWA also agreed to turn over to the Army at once 34 of its 1200-horsepower Wright Cyclone engines to power completed airplanes now awaiting motor installation in West Coast factories.

UNITED—Delivery of nine new DC-3 Mainliners to United Air Lines has been completed by the Douglas Aircraft Company, bringing United's total fleet to 71 twin-engined transports. Ten Mainliners were in the company's original order for additional equipment, but one was diverted to the United States Army Air Corps.

• United Air Lines in 1940 flew substantially more miles and carried the greatest volume of passengers, mail and express in its 14-year history, according to figures given out by W. A. Patterson, United's president.

Revenue passenger miles flown by United in 1940 totaled approximately 226,000,000 for a gain of 52 per cent over the 146,000,000 recorded for 1939. An estimated 23,300,000 revenue airplane miles were flown by the company's 71 twin-engined transports on its coast-to-coast and Pacific Coast system. Cargo figures show an estimated total of 7,150,000 pounds of air mail carried, for an increase of eight per cent over last year, and 2,900,000 pounds of air express, for a gain of 20 per cent.

MISCELLANY

AIRWAY TRAFFIC CONTROLLERS NEEDED

Junior airway traffic controllers are needed by the Civil Aeronautics Administration in connection with the national defense program. The examination for these positions held earlier this year failed to produce an adequate number of eligibles; therefore the United States Civil Service Commission has announced that it will again receive applications for these positions. Applications will be rated as received (subject to written examination) at the Commission's Washington Office until further notice.

Further information regarding the examination and the proper application forms may be obtained from the Secretary of the Board of U. S. Civil Service Examiners at any first or second-class post office, or from the United States Civil Service Commission, Washington, D. C.

WEATHER PREDICTION SIMPLIFIED

WEATHER PREDICTION, by Major R. M. Lester, F. T. Met. Soc., Chemical Publishing Company, New York, $4.25.

Here is a book of 252 pages, illustrated with photographs and charts, and written in simple, non-technical language with the express purpose of making accurate local weather prediction possible to the average man. Showing how the Weather Bureau collects its data and arrives at its reports, how weather instruments are used and weather maps made, how the different types of weather form and develop, and how climates are caused and changed, this book is both informative and interesting from a standpoint of general information even though the reader may have no particular desire to depend on his own weather predictions.

The section on cloud study, illustrated with photographs of cloud formations associated with various types of weather, is particularly helpful and easily understood.

A special chapter has been written discussing the weather conditions favorable to the flight of airplanes and to the possibility of attacks.

OFFICIAL CONTEST MANUAL

(New Edition Official Contest)

MANUAL—published by the Academy of Model Aeronautics.

This new Contest Manual just published is the most comprehensive work of its type ever offered in the field of junior aeronautics.

As the official handbook for the activity, the Manual contains scores of charts, illustrations, official competition forms, and detailed explanations of how to set up and run aeromodeling meets. Running more than 25,000 words, it presents the most inclusive compilation ever offered in this field.

The Official Academy Contest Manual sells for 50c, postpaid. Inquiries and remittances should be addressed to the Academy of Model Aeronautics, Willard Hotel, Washington, D. C.

OPERATORS ORGANIZE

WILLIAM A. (BILL) ONG

The National Aviation Training Association was organized at a two-day meeting last month in Kansas City. The conference was attended by more than 200 flight-training operators, aircraft manufacturers and others interested in the continuation of the Civilian Pilot Training Program. Membership in the association is open to all types of fixed-base operators, non-scheduled fliers and the manufacturers and service concerns supplying non-scheduled civil aviation.

William A. (Bill) Ong, Kansas City, was elected president. Other officers are: Leslie H. Bowman, Fort Worth, vice president; Roscoe Turner, Indianapolis, vice president; John C. Bennett, Jr., Louisville, treasurer; and C. R. Mooney, Kansas City, secretary. The association was organized on a geographical basis of seven regions to correspond with the seven Civil Aeronautics Administration regions, each region having one member on the Board of Governors. The membership fee is $10 annually.

A meeting of the board will be held in St. Louis January 3, at which time administrative functions of the organization will be perfected.

A. H. Leak

W. W. Bishop

W. B. Birren

W. V. C. Auser

Wm. P. Lear

Dr. Hugh Dryden

PERSONAL NOTES

• W. V. C. AUSER, personnel director of Wright Aeronautical Corporation of Paterson, N. J., and an active figure in increasing that organization's employment from less than 5,000 to approximately 15,000 persons within a year, has been appointed to the newly created post of personnel director of Curtiss-Wright Corporation to co-ordinate its personnel policies and uniform practices, according to Guy W. Vaughan, president of Curtiss-Wright Corporation and Wright Aeronautical Corporation.

Myron B. Gordon, vice president and general manager of Wright Aeronautical Corporation, has announced the promotion of three Wright officials to new posts, as follows:

• W. B. BIRREN, former supervising service engineer, has been appointed service manager to succeed William D. Kennedy, who was recently named sales manager; ARTHUR H. LEAK, of the engineering staff, becomes assistant chief engineer, following the promotion of Raymond W. Young to the post of chief engineer; and WALTER W. BISHOP, assistant personnel director, is designated personnel director, to replace W. V. C. Auser, transferred to the newly created post of personnel director of Curtiss-Wright Corporation.

• The Frank M. Hawks Memorial Award which New York's Air Service Post 501 of the American Legion named for one of the pioneers of the current era in aviation, has been presented to WILLIAM P. LEAR, 38-year-old radio engineer of Dayton, Ohio, recent inventor of a unique "gyromatic navigator" which simplifies all problems of aerial navigation and instrument landings and makes possible bombing operations under "blind" weather conditions.

The device combines the functions of an automatic radio direction finder and a directional gyro, and the correlated use of these two elements provides the pilot with a continuous running solution of air navigational problems, including drift indication.

• DR. HUGH L. DRYDEN of the National Bureau of Standards has been chosen by the Fellows of the Institute of the Aeronautical Sciences as the 1940 recipient of the Sylvanus Albert Reed Award which is conferred annually for notable contributions to the sciences relating to aeronautics. Presentation of the award will take place at the Institute's Honors Night Dinner in New York on January 25th. Dr. Dryden received the award "for his contributions to the mechanics of boundary layer flow and to the interpretation of wind tunnel experiments". He is chief of the mechanics and sound division of the National Bureau of Standards and has been on the bureau staff since 1918. His work has been principally concerned with studies of wind pressure on structures, turbulence of the air stream in wind tunnels and measurement of the boundary layer phenomenon connected with the flow of air over aerodynamical surfaces.

• Appointment of Gardner W. Carr, former Vice President and General Manager of the Glenn L. Martin Company as British Contract Co-ordinator in charge of the entire administration of British contracts, has been announced by the Lockheed Aircraft Corp.

—AT "AVIATION HEADQUARTERS"

Those who fly have discovered that there is one place in New York City where they not only meet more of their friends but meet them more often—*and it's The Lexington!* In fact, so many of the aviation fraternity congregate at "New York's friendly hotel" that it's popularly regarded as the industry's metropolitan headquarters. On our part, we are particularly proud to have you stop with us—and wish you many more "happy landings" here!

Charles E. Rochester, V. P. & Mgr. Dir.

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PORTS OF CALL

Correspondence from the Airports and Airways

Brownwood, Texas

CAA Students Working Hard

The Brownwood Municipal Airport is now equipped to supply 100 octane gasoline, which will be an advantage to army pilots landing at the airport.

Lt. Sherman and Lt. McConnely of the 111th Observation Squadron of the Texas National Guard were the first to arrive for duty at the new army camp located on the airport. Douglas O-37's and O-38's, and North American BC-1's are being used at present for photographic and observation work by the men stationed here.

Wilbur Roberts, former CAA student who is training with the RCAF, is flying again after a hospital internment for bronchial pneumonia. He probably will be transferred to Trenton, Ontario, after the first of the year to begin his work as an instructor. He will be joined there by his wife, the former Sara Cawley of Daniel Baker College.

The CAA students are working hard and trying to get in as much time as possible; all they ask is a little decent weather.

Among the non-CPT students who have soloed recently are: Mrs. Thelma Mays, public school teacher of Zephyr, Texas, and W. A. Brazell, construction foreman at Camp Bowie.

Attending the Howard Payne-Hardin Simmons ball game in Brownwood were J. G. Shultz, Dub Cleveland and C. B. Jones, who flew in from Abilene, Texas.

—*VERA MAE SEAMANS.*

Dallas, Texas

North American Plant Construction Ahead of Schedule

Another new contract has been added to the growing total awarded the Dallas Aviation School by the Government, Chief Flight Instructor Hart Bowman has announced.

The latest contract calls for apprentice instructors' training. The first group of ten men began instruction this month to prepare for posts with CAA Board-sponsored programs throughout the country. They will be equipped only to teach primary flying in civilian schools.

Sixty-three craftsmen have been employed to date at the preliminary North American Aviation plant on Commerce Street and currently are engaged in the turning out of airplane parts, according to James Rivers, factory superintendent.

The first training class of 30 and the second class of 100 have completed their tenure at the school and a third class of 100 currently is enrolled, Mr. Rivers revealed. Some of the graduates have been employed while others compose a reservoir of trained men to be available for employment when the plant at Grand Prairie is opened.

Dallas' New Love Field terminal building was praised recently by Mrs. Franklin D. Roosevelt, who stopped a few minutes en route to a lecture engagement at Hardin-Simmons College at Abilene, Texas. Mrs. Roosevelt arrived in an American Airlines' plane.

Charles Galiant, Jr., of Inglewood, California, was in Dallas, recently, checking mechanical details in construction of the huge North American Aviation plant near Grand Prairie. Mr. Gallant said his company will establish a material control department and huge supply storehouse in connection with the factory.

Willis C. Brown of Houston has been in Dallas consulting with contractors on erection of the Southern Aircraft, Inc., plant near Garland.

Hammers are pounding at full speed on this project, the start of which was delayed several days by heavy rains.

Equipment valued at $15,000 has been installed in a two-story building at 1913 North Harwood Street, where the Frye Aviation Company of Texas has opened its airplane mechanics' school. Donald Frye of Kansas City, Mo., head of the concern, has established permanent residence in Dallas, new headquarters for his Nation-wide training school system.

Randon M. Reid, son of Mr. and Mrs. S. Reid of Dallas, has left by clipper ship for Britain where he will ferry fighter planes for the RAF from factory to the front line. He has been flying for six years and recently has been employed by the Lou Foote Flying School at Grand Prairie. He is a graduate of Woodrow Wilson High School and attended NTAC and Texas A. & M.

An enlargement of the army air corps mechanics' training program may be expected if further expansion of the Nation's national defense program is brought about, according to Brigadier General Rush B. Lincoln, director of all U. S. air corps technical schools, who recently made an inspection tour of the new army mechanics base located at Love Field under direction of Major W. F. Long of the Dallas Aviation School.

Major Long was complimented by General Lincoln on the manner in which the local mechanics' school had been set up.

D. Harold Byrd, local oil man and aviation leader, has been elected president of the B Line Club, an organization of Dallas stockholders in Braniff Airways.

Jake L. Hamon has been elected vice president and Cecil R. York, secretary-treasurer.

First Lieutenant P. M. Spicer has been transferred from Kelly Field, San Antonio, to the Dallas army air corps detachment at Love Field where he will be an assistant training supervisor, according to an announcement by Capt. E. F. Yost, commanding officer.

Recommendation that the city order the widening and paving of Love Field Drive, the narrow trafficway back of hangar row at the airport, has been sent to the city council by City Manager James W. Aston. This improvement is one of several projects which must be completed before Love Field can receive a class 4 rating, the highest awarded by the Federal Government to commercial airports.

In spite of periodic rainstorms, construction of the $7,000,000 North American Aviation plant at Grand Prairie is ahead of schedule, according to Joseph Cunningham, superintendent for the general contractor.

Southern Methodist University will introduce courses shortly after January 1, to prepare men for key positions in defense industries, according to E. H. Flath, dean of the school of engineering.

Two classes — one in production supervision and one in engineering drawing—will meet five nights a week for twelve weeks and will contain a maximum total of 65 students.

Although official confirmation from Washington has not been received, Dean Flath said he had been notified of the U. S. Board of Education Advisory Group's approval and told to proceed immediately with arrangements at the University.

Enid, Oklahoma

Airport Manager Commissioned in Reserve

Two new Aeronca Tandem Trainers are being used this fall at Woodring Field to train the twenty CPT students enrolled through Phillips University. All students have soloed, and the two girls with this program—Betty Lee Elliott and Marie Vater—are in Stage D and almost ready for cross-country flying. Last soloist was Sam Alton, who flew from Maracaibo, Venezuela, via Pan-American Clipper to join the class.

Five CPT students who received private licenses at the close of the summer class are now beginning primary training for the Army at Santa Maria, California. They are Gillis Johnson, Wesley Gamble, Guy Stallings, Eddie Watson, and Gene Dale.

Forrest Watson, of Thomas, received his new Aeronca Chief, and made his solo flight recently.

W. G. Garrett, of Mangum, stopped in to see us on his way to St. Louis. He was flying a Travalaire. George Athey came out and dusted off his Rearwin.

Airport Manager Bill Vacin recently returned from Tulsa where he has been in training for an Advanced Instructor's Rating. Bill also received his Second Lieutenant's commission in the Air Corps Reserve.

—*MARIE VATER.*

Fort Worth, Texas

Eaglecraft's New Ship Tested

Les Bowman, owner of the Fort Worth Aviation School, has been elected Vice President of the National Aviation Training Association. Among objectives of the association are the continuation of the CPT program and the encouragement of Federal pilot training contracts on a yearly basis.

Mr. Bowman has a class of thirty students in advanced training at his flying school, besides a large number of primary students and flying operators who are taking courses in instruction.

Our port was recently honored by a visit from Mr. and Mrs. R. L. Heydacker, of Rochelle, Illinois, who flew here from Chicago in celebration of their fifty-third wedding anniversary. It was the couple's first airplane flight and also their first visit to Texas.

Finis Fox is Delta's new Fort Worth station manager. He has been with the company three years, serving in both Fort Worth and Dallas. Fox is well known in aviation circles, and has many friends in Fort Worth.

Production is proceeding in the new factory of the Eaglecraft Company on the Jacksboro Highway. According to Verner A. Tobinson, president of the company, the new ship gave an outstanding performance during a recent test flight made by Al Hopon, veteran pilot. Pending receipt of the coveted A.T.C. the company is going ahead with the production of five more ships, for which tentative orders have already been placed.

The personnel of the new plant includes: L. A. Thompson, chief mechanic; Bill Bird-

well, sheet metal foreman; M. J. Sprenger, engineer; O. Z. Coon, head of finishing department; and Albert Dulock, assistant finisher.

Troy Vencil, 31-year-old veteran airplane builder, has joined the staff of the American Aircraft school here as chief instructor in the airplane division. Vencil began his aviation career at the age of 12 when he was employed as an errand boy and helper around various aircraft centers. He has been employed in the maintenance division of American Airlines, and later owned and operated the Aircraft Sales and Service Company of Dallas. During the last four years he has been associated with leading California aircraft manufacturers. We are happy to welcome Vencil into our program to prepare 'plane builders for jobs.

Quite a bit of excitement was caused recently by the visit of two British patrol bombers, already adorned with the white and blue ensignia of the Royal Navy.

A new club has been organized and quite a large number have joined. After considerable serious thinking, the club was finally called: "Longer Safety Belts for Pilots".

—*MARGARET EWING.*

Georgetown, Texas

Pilots' Lounge Added to Hangar

Long promised and awaited "Sunrise Breakfast" at the University Airport will take place January 5, 1941, with festivities beginning at 7 a. m. with free breakfast for all visiting pilots and their passengers. Late arrivals will be assured of a feed. Operators Reynolds and Bryant have promised a program during the day that will be of interest to all attending. The field is in good shape and there is plenty of runway space for almost any job. Everyone is cordially invited to attend.

Due to the increased activity at the port, Operators Reynolds and Bryant have had to build another room in the hangar for a pilots' lounge so that they can carry on their book work. High lines at the north boundary of the field are being moved and this will give added approach and runway when the wind is from the south.

Cross country trips will be the order for the boys in the first allotment of CPT students as most of them are now entering stage D of their training. Instructor Sexton is due for a great amount of "hollering" as some of the boys will have to miss a day flying while the cross country hops are taking place.

Instructor Bartholomew has soloed four of his students, and most of the others are on the verge—just a matter of a little more time—so free drinks will again be flowing.

The underground gasoline pit is now in operation and speeds up the servicing of ships. Several visiting ships have been on the field the past week and this is becoming one of the regular stops for cross country students. —*BOB SEXTON.*

Hobbs, New Mexico

Government Mechanical Courses Popular

Eleven students have soloed here since last writing, five of whom were CPT students. They are: Ronald Bell, W. B. Filler, Loyd Hall, Floyd Stevens, Rufus Mitchell, Buster Gardener, Dick Schenck, J. R. Cone, Damon Shipp, Cecil Love and Dick Hardin.

Thirty-two students are now taking the government sponsored mechanical classes being held at the airport three nights a week. The course—ship and engine—will last until February. Instructors are B. F. Hines and C. W. McGarvey. The school is being held in conjunction with the State Department of Education under the sponsorship of the CAA national defense program.

Pilots C. W. McGarvey and Phil Livingston returned last week from Lock Haven, Pennsylvania, with two Piper Cub Trainers for distributor B. F. Hines.

Latest improvement at the local port is the painting of the telephone poles which border the north side of the field yellow and white—the international colors.

J. C. Roberts, of Fort Worth, is taking a flying course under the instruction of B. F. Hines. Roberts took his first lesson on a Monday and soloed on the following Sunday.

Dick Callens, from Roswell, N. M., is the latest addition to the airport staff. Dick is CPT instructor.

—*LOUISE MURRAY.*

Kansas City, Missouri

Flight Operators Organize National Association

At the regular dinner meeting of the Women's National Aeronautical Association at the Bellerive Hotel, a "quiz show" was presented in the best Professor Quiz manner, with a Kay Kyser flavor for good measure. Miss Jewel Stanton popped the questions to her College of Aeronautical Knowledge, consisting of Mrs. Marie Page, Miss Betty Cox, Miss Neva Rae and Miss Marie Major. These aviation experts, all of whom are actively engaged in private flying, refused to be "stumped" by such brow wrinklers as: "Is a spiral a type of permanent wave?" and "Should a snap roll be eaten with coffee for breakfast?" Between puns on aviation terms the quizmaster and her experts also contributed worthwhile information on private flying.

A national meeting of independent and non-scheduled flight operators was recently held in Kansas City. The new National Aviation Training Association, an organization composed of civilian flight instructors and flying schools participating in the flight training program of the CAA, was formed. The following officers were elected: William A. Ong, Kansas City, president; Clarence R. Mooney, Kansas City, executive secretary; Leslie H. Bowman, Fort Worth, and Col. Roscoe Turner, Indianapolis, vice presidents; John C. Bennett, Louisville, Ky., treasurer.

Brig. Gen. Rush B. Lincoln, commandant for the air corps technical schools, recently visited Kansas City to inspect the Missouri Aviation Institute and confer with Homer L. Bredouw. General Lincoln, Larry Fritz of TWA, C. M. Woodward of the Chamber of Commerce, and City Manager L. P. Cookingham were luncheon guests at the mess hall of the school.

W. T. Brown, former member of the Chamber of Commerce Aviation Committee, has been appointed manager of the Municipal Air Terminal. Mr. Brown succeeds Charles D. Daily who resigned several weeks ago to enter the army air corps as a captain.

About 170 persons have enrolled in "dawn patrol" classes at Manual High and Vocational School in national defense occupations. Applications for the courses offered were so numerous that it was necessary to arrange the extra classes to be held from midnight to 8 o'clock in the morning.

Les Maudlin of Brownsville, Texas, demonstrated that the Missouri River sandbars can be used for a landing field in an emergency. The motor of Maudlin's cabin monoplane cut out at an altitude of about 200 feet when he was taking off from the Municipal Air Terminal. Looking hastily around for a good landing spot, the pilot set his ship down on a sandbar, repaired a clogged fuel line, and took off again successfully.

Construction of new barracks at Fairfax airport is in keeping with an increased training program here. Lieut. Commander W. B. Ault, commandant of the Naval reserve base here, states that the new barracks will house 100 naval aviation cadets. The cadets will be given preliminary flight instruction and ground school training to determine their aptitude as military pilots. If they pass this

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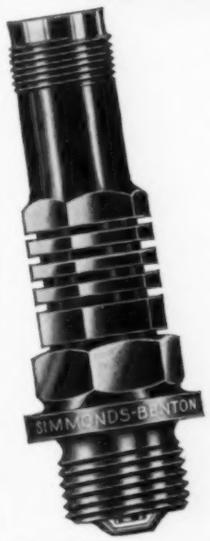

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initial hurdle successfully they will then be sent to Pensacola, Florida.

—*MARION M. NEWELL.*

Lafayette, Louisiana

State Has Flying Game Warden

Mrs. Fanny M. Leonpacher was elected governor of the Southern Central Section of the 99 Club, international organization of licensed women pilots. Mrs. Leonpacher has served previously as secretary-treasurer for the South Central Section, also is national editor of the News Letter published by the club.

Leo J. Gros, manager of the Lafayette Flying Service, has announced that two women students in the CPT program have soloed: Miss Mildred Iles of Oakdale, senior at S. L. Institute, and Miss Yvonne Stafford of Denham Springs, who is in her junior year.

With the closing of the year, the third group of CPT students have just about completed the required course. The first class had two women students: Miss Marguerite Blair of Covington and Miss Marian Scherr of New Orleans. The summer school program made no arrangements for women students. I wonder why.

Ed Casey, a former student of the Lafayette Flying Service and now a flying instructor with Southern Aviation at New Orleans, was a recent visitor, as were also Lester Freeman of Lake Charles and Bob Wight, Cub representative, from Biloxi, Miss.

J. M. Shepherd, flying a Monocoupe from Miami, Fla., to Los Angeles, was caught in a heavy rain storm over Lafayette. Manager Gros turned on the beacon, also the boundary lights, and then took a plane out to bring him in. Was Mr. Shepherd glad to put his feet on the Good Earth . . . Goes to prove our airport staff is on the job, rain or shine.

Jess W. Parker, Lafayette Flying Service instructor, and Miss Dorothea L. Stahmann of Tallahassee, Fla., were recently married. After a brief honeymoon they are at home in Lafayette.

Two of the private students at the field have soloed recently: Mrs. Jewel Easterwood and Gus Volts. Gus is a SLI student, but is taking private instruction. Let's not forget Mrs. M. L. Harrison of Franklin, who soloed some time back and is now doing "cross country", flying in the other afternoon from Franklin.

Manager Gros says he still hunts, but now he has more to look for than just ducks while in the blinds. The State Department of Conservation has put a light airplane into service to spot hunters and drop beside them for a quick check-up. Crime doesn't pay!

—*MRS. F. V. HUTCHINSON.*

La Feria, Texas

Land Gift Permits Airport Improvements

Thanks to Mr. Sam Miller for the 87 acres donated to the McAllen Municipal Airport, we now have one-half mile landing strips in any direction.

Walter S. Fullwood, manager of the airport, has a new Ford tractor and necessary equipment to keep the field in good condition at all times. A new gas pit has been installed and 73-87-92 octane gas is now available on the field.

Two CPT inspectors were recent visitors to the port; they were well pleased with hangars and equipment, including radio room. Charlie Martin is now having school in all classes of Radio Communications.

Mr. Fullwood is placing receivers in his trainers for student solo work.

Jack Nelson received his '39 Airmaster recently—and is he proud?

Paul Sheldon has arrived from the factory with another Cub Trainer for Mr. Fullwood. This makes a fleet of four, including a Cruiser.

A. M. Horrall of Tulsa and Dr. Conner of Corpus were recent visitors at the port; also Conoco's Lockheed came in from Tulsa.

Fred Wills is trying for his instructor's rating, but it seems that he is having trouble with his spins. Some call it "sea sickness".

—*CLIFF NEIDHART.*

Miami, Florida

Goodyear Blimp Back At Winter Base

Enrollments continue at a rapid pace at Embry-Riddle Company's technical school. Welding, sheet metal and drafting courses are already in session and additional craftsman studies will be announced soon.

Thomas E. Halpin heads the technical division which is comprised of the following staff: A. Barr and W. R. Barr, welding; W. C. Beckwith, electrical work; Lee R. Malmsten, director of ground school; John Howard, Jacob Lacinak, James McShane, R. B. Ault, Sobie Smith, Harold L. Mitchell, Mrs. Grace Roome, E. Gaubis, Dorothy Schooley, Frances Ledford, Sim Daniels and B. A. Shultz.

Max Husted and Jack Wantz are now instructing at Municipal. Both are former students of the Embry-Riddle commercial pilot school.

Clyde Ellis and Frank Baque, Jr., are taking instructor refresher courses. Paul Horvath is also managing to take an instructor training course between charter trips to Bimini and Cat Cay.

Jerry Levy of Rochester, N. Y., who began his air career in Miami last year, has returned to take up duties as control tower operator at ERCO. Jerry expects to qualify as a commercial pilot in the near future.

Coincidental with his 21st birthday, Warren (now I am a man) Kellar, has been promoted to chief of the line crew.

Don R. Beardslee and Nelson Miller have left Miami for positions with the General Inspection Division of the CAA.

Shorty Hall, Murray Wittner, Billy Hanks and Frank Skillen have all forsaken the balmy southland to ferry ships from Canada to the British Isles. When last heard from they were in Montreal and were cold.

Goodyear's blimp, the "Reliant", under command of Jack Boettner, is back at her winter base on the County Causeway adjacent to Embry-Riddle seaplane base. The sight of the "Reliant" floating over the city is an accepted part of Miami's winter season, and thousands of people get their view of the winter resort from its cabin.

Chief Instructor Webster Wiggins of ERCO seaplane base reports the growing popularity of short seaplane cruises to the nearby keys. Winter visitors find the uninhabited tropical islands of the story books only a few minutes from downtown Miami when they take one of Wiggins' "South Sea cruises".

—*AL SHULTZ.*

San Angelo, Texas

New Flying Club Organized

Another Aeronca Trainer arrived at the airport recently for the newly formed Concho Valley Flying Club. The members are: Morris Brooks, president; Miss Dorrey Lee Skinner, secretary-treasurer; Homer Jordon, Jr., M. W. Crumley, W. D. Kring, Mrs. Douglas, Hilliard Rowe, and Doyle Lane.

Students who recently made their cross-country are Frank Proctor, Neill DeLaney (CPT students) and Hilliard Rowe, Eddie Williamson, and D. C. Holman (private students). Also, Mr. Collier Noguess made his cross-country.

Solo students in the Jaycee Club are Johnny Bryan, J. W. Henson, Jack Allison, Jimmy Overstreet, W. F. Drake, Jr., and Dale Jackson.

Dr. and Mrs. Otis Parris and M. H. Lane recently returned from Fort Worth . . . Mr. Lane passed the examination for his 2S rating . . . Bill Wakefield, CPT instructor, has also passed his 2S rating.

Mr. Gay Copeland of the West Texas Butane Gas Co. made a business trip to Flagstaff, Arizona, Amarillo and Dallas, Texas, in the Waco.

New students are Mr. and Mrs. Gusmire and Mrs. William Wakefield.

Mr. H. S. Warr, Piper Cub factory representative, and Lewis Tackett, CPT maintenance inspector, were recent visitors at the port.—*JOYCE THERWHANGER.*

San Antonio, Texas

Women's Flying Club Organized

Due to the tremendous interest in aviation shown by the residents of San Antonio, Hangar Six, Inc., has found it necessary to greatly increase its instructor personnel. At

Right: This huge uncompleted hotel structure valued at a cool million will house Miami's new "air university" scheduled to begin training of 1,500 technical students yearly by January 31st. Equipment worth $100,000 is now being installed in the building to be operated by the Embry-Riddle School of Aviation. Classes of 500 students will start training early in December. Left: Preparing data for the new school are John Paul Riddle of the Miami company and Thomas Halpin, who will head up the new branch of the Embry-Riddle Aviation School.

this time, this department is headed by Marlin Fischer and includes: Henry T. Fischer, Fred L. Thomson, E. C. Alexander, Jack Teel, and Herbert Ruhnke. Marlin Fischer and Fred Thomson are keeping 2 Waco UPF's busy, while the rest are piling up hours in the 7 Cubs on the line.

The newest addition to the Instructors' Rating "Gallery" is Col. Jack Lapham, President of Hangar Six, Inc. While the Colonel has been flying for many years, the new CAA regulations show no preference, so he spent many days in deep study and emerged, as usual—smiling.

Clinton J. Thompson, General Manager of Hangar Six, Inc., also has added a new rating to his license. This time, Clint saw CAA Inspector Frank Miller, who is now stationed at Stinson Field, write his approval on Clint's license for Instrument Rating. With Clint as enthusiastic as he now is about instrument flying, Hangar Six anticipates a land-office business on their blind-flight trainer.

H. K. Stanfield has traded his 1939 Cub Coupe for a 145 h.p. Luscombe Phantom. . . . Logan Stevenson is doing a great deal of flying in his new 330 h.p. Waco Custom, and is becoming almost a permanent fixture around the airport. His brother, David, is running him a close second, having purchased a 450 Wasp Spartan Executive. When these two flying brothers take to the air, Stinson Field appears to be having a mild case of "blitzkreig".

Work is progressing on the new home for the Traffic Control Center on Stinson Field. With as much traffic as is now found in this vicinity, the CAA decided to move its Traffic control facilities to this field. Mr. John Cape, Airport Manager of Stinson Field, is certainly beaming over this new addition.

The "Aeromada" is a recently organized club of women flyers of San Antonio, its purpose being the furthering of interest in aviation among women. The operators on Stinson Field have donated the services of their ground instructors in order to completely familiarize these women with all aspects of aviation. Each member has at least 3 hours of dual instruction and a complete ground course will be of great value to them. Miss V. V. Mills is the President, ably supported by Dana Patterson, Vice President; Carolyn Winter, Secretary-Treasurer; Lucille Fritz, Reporter; and Mrs. Rita Mims, Librarian. They now boast 14 active members with appilcations coming in every day.

Recent visitors to Stinson Field include: Hugh Herndon, Bill Casson, Francis McDonald, R. J. White, Bob LeSage, Kelly Cox, Hardy Young and Reg Robbins. —*L. E. MOSER.*

One of the most popular radio programs now on the ether waves is the "Wings of Destiny" program sponsored by the Brown and Williamson Tobacco Company, manufacturers of "Wings" cigarettes. Once each week the concern gives away a new Cub trainer. The happy winner shown above is James Franks (left), San Antonio vacuum cleaner salesman, who is being congratulated by Lt. Arthur Peirce while Lorry Moser, sales manager of Hangar Six, Inc., looks on.

Savannah, Georgia

Airplane Mechanics Course Started

Seven of the ten CAB students at the Georgia State Teachers' College have made their solo flights recently and the other three will be taking the air alone at an early date according to Capt. Wilder Enslow of Savannah, flight instructor for the Statesboro Aircraft Corporation.

The seven students who rave soloed to date are Tom Vandiver, Knapp Boddiford, Jones Lanes, Pete Parrish, Floyd Wardlow, A. J. Bowen and Bob Bryan.

There are two instructors from the Teachers' College faculty taking the CAB training. They are Knapp Boddiford, instructor in industrial arts, and Damon Turner, instructor in romance languages.

Approximately 85 per cent of the construction on some 185 buildings at the $3,000,000 army air base here has been completed, according to Maj. Michael Grimaldi, construction quartermaster corps, in charge, with the base scheduled to be ready for occupancy soon after the first of the year.

A course for airport mechanics for national defense workers has been started at the Municipal Airport, Hunter Field, under the direction of Harry Adams, chief pilot for Strachan Skyways, Inc., who recently received a commission as a second lieutenant in the reserve air corps of the United States Army.

The course is under the supervision of the Savannah vocational schools, W. N. Pittman, director, and John Register, manager of Strachan Skyways, and is designed to accommodate about 15 experienced mechanics. Instruction in airplane and airport work is being given.

Maj. Gen. B. K. Yount, United States Air Corps, and Mrs. Yount were recent visitors while on their way to Tampa, Florida, where General Yount is to make his headquarters.

The current issue of the Great Silver Fleet News, publication of the Eastern Air Lines, carried an interesting report about activities at Hunter Field, Savannah Airport, and a picture of W. D. Bennett, former field manager here who was recentely promoted to Atlanta dispatcher.

Two professional fire fighters have been employed at the air base during the construction period to augment the fire fighting detail, all under the supervision of Capt. C. C. Clement, fire marshal.

—*LYDIA M. BETTENCOURT.*

Shreveport (Bossier Airport), Louisiana

New Training Ship to Be Purchased

Due to the increase of students being enrolled for the new class opening early this month, it will be necessary to purchase another training ship. T. R. "Ted" Young, manager, hasn't decided on the type, but he assures us it will be a 2-S ship. This will bring the total up to 4 for training purposes alone.

The latest students enrolled are: Al Curry, Jr., C. F. Covington, E. J. Skibbo of Barksdale Field, P. W. Stokely of Houston, H. A. Wike, and Mrs. L. M. Leike.

Lake Littlejohn, our CAA inspector, recently spent the day here giving private tests. Lake Fowler, the first student to enroll and solo, was also the first to receive his private license.

The hangar is now filled almost to capacity

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with ships, the latest addition being an Aeronca Trainer deposited by P. W. Stokely.

Ted Young received a letter from F. C. "Pop" Nagle who writes that his address is: Flying Officer F. C. Nagle, Jr., Officers' Mess, Picton, Ontario.

Instructor Young and student Maxwell Smith have returned from an extended trip to Indiana and Ohio. They reported the weather as being very cold there during their stay.—*HAZEL MORTON.*

Tulsa, Oklahoma

Large Grants for Local Airports Announced

The defense priorities board in Washington has approved an outright grant of $482,000 for the improvement of Tulsa's airport facilities under the national defense program.

The grant has been split into two funds: one of $323,000 for the Municipal Airport, and the other of $159,000 for "municipal airport No. 2". This latter project involves improvement of the present Commercial Airport southeast of the city.

Construction is expected to start in the immediate future, and will be limited to landing facilities such as grading, runways and lights. The money will not be used for buildings, hangars or other construction.

"The improvements to the Municipal Airport will make it one of the finest in the country," C. W. Short, airport manager, said. He also emphasized that the Tulsa Park Board, which administers the port, has property sufficient to enlarge the landing field still more, if necessary.

Approximately 35 young men who have enlisted for service in the national guard aviation squadron assigned to Tulsa, recently attended their first meeting at the national guard armory. Major R. O. Lindsay, commanding the unit, wants to have everything ready to start training immediately after receiving Federal recognition.

The hangar, to be built for the unit at the Tulsa municipal airport, probably will not be completed until about June, Major Lindsay believes.

"So we will probably not receive our flying equipment until we can properly house it," he said.

Robert L. Mann, graduate of the University of Alabama, and recently aerodynamics and layout engineer for Douglas Aircraft and structural designer for Northrop Aircraft, Inc., has recently joined the staff of Spartan School of Aeronautics as the new chief of the engineering department. He will be in charge of the technical training given to students in the Aeronautical Engineering and Airline Maintenance Engineering courses.

Joseph Bartnick, also a graduate of the University of Alabama, has been selected as Mann's assistant.

Class 41-E of the Air Corps Flying Cadets at Spartan School, which began training early in December, totaled 111 students and represented the largest allotment assigned to the school at Tulsa. At the same time, a class of 90 men began their primary instruction at the Spartan School branch at Muskogee, Oklahoma.

The top ranking cadet at Randolph Field, Battalion Commander Martin B. Schofield of Oklahoma City, is a graduate of the Spartan Air Corps Training Detachment.

Capt. Maxwell W. Balfour, Director of the Spartan School of Aeronautics, has recently hired 25 new flight instructors for the school. Delivery has recently been taken of 12 new training planes for the use of the Civilian Flight Department of the school.

Immediate steps toward enlarging the city's hangar at Municipal Airport temporarily to house the new 125th Observation Squadron, National Guard unit, has been authorized by the city park board.

Present plans call for an expenditure of approximately $15,000 from the park board airport fund to extend the municipal hangar 80 feet, nearly doubling its present capacity. Major R. O. Lindsay, in charge of the new National Guard unit, will immediately requisition his airplane equipment and will use a section of the enlarged hangar until the separate National Guard hangar is completed north of the present municipal hangar.

"After the new National Guard hangar is completed the city will not have any difficulty in renting the additional space in the municipal hangar," Charles Short, Jr., city airport manager, explained. "Such a move will materially increase the airport's revenue."

Local aviation enthusiasts are overjoyed at the grant of $159,000 for Commercial Airport improvements. Construction is expected to start in the immediate future and in addition to grading and drainage improvements, will provide beacons, boundary, range and obstruction lights.

Among recent visitors were Paula Loop, Clarence Burr and Ralph Cooley of Ponca City. Mr. Cooley is the Oklahoma Luscombe distributor, and has just returned from a sales trip from the New Jersey factory and reports business is far ahead of last year. Paula Loop flew one of the planes over for Mr. Cooley. She learned to fly through the CPT training at Ponca City.

Word from Walter Lewis—he is on his way to Canada to join the Royal Canadian Air Force.

Jimmy Kone and Kenneth Burke have recently purchased a new Cub Cruiser; also a new Cub Trainer was delivered to the "Tulsa Flying Club".

Recent bad weather has slowed up the CAA students, but under the instruction of Henry Frye, Marvin Bradley and George Montgomery they are in full swing again and progressing very nicely.

Marvin Sullege is a little late in passing around the cigars (I never have received mine).

DeWitt Ross has been added to the staff of instructors at the field. Ralph Kistler is taking his instrument rating course over at the Spartan School and Kenneth Burke is taking the instructor's refresher course. Clark Millison is now the happy owner of a private license.

Best wishes for a very happy and prosperous New Year.

—*JOHNNIE LAIRMORE.*

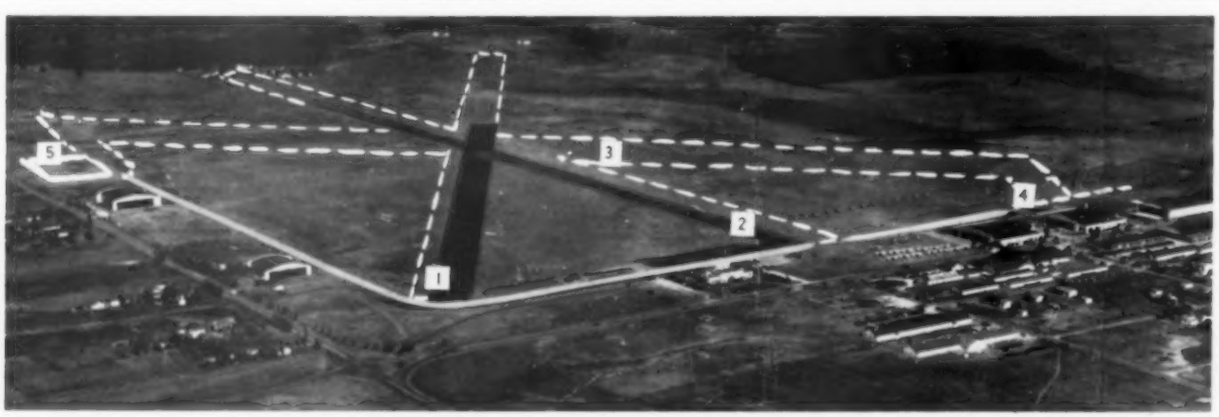
Tyler, Texas

Ten Girls Soloed from Local Port

It looks as if Tyler will soon have an aerial police force, now that J. W. Patterson has soloed his Robin, making the third Tyler officer to become a pilot. The other two are Lafayette Wofford and highway patrolman Holub.

If things continue to hum around here as they have been doing lately, it is going to be necessary to engage some traffic control assistance on the ground. In addition to several planes owned by civilian pilots, the four that are being used for CPT training can be seen in the air almost constantly.

There are two girls in the present class—Miss Laura Louise Glenn and Miss Ruth Ellen Dailey—bringing the total up to ten girls who have been soloed on this airport by Instructor Russ Finefrock. Incidentally, this is believed to be a record for any one airport in Texas. The other eight girls are: Mrs. Margaret Billingsley, Misses Florence DeBee, Gertrude Bassham, Cleo Bennett, Elsie Gipson, Mildred Wells, Dorothy Sanford and Mercedes



TULSA'S MUNICIPAL AIRPORT TO RECEIVE MAJOR IMPROVEMENTS

Shown above are the three runways to be extended and improved as a part of the $323,000 grant, and the location of a new hangar for the National Guard unit under the direction of Major R. O. Lindsay. The present municipal hangar is to be enlarged to twice its present size. An additional grant of $159,000 has been granted to Municipal Airport "Number 2", better known as Commercial Airport.

Here is the staff of Tyler Aviation School now busy with its third Civilian Pilot Training Program course for the Tyler Junior College. Left to right: Russ Finefrock, owner of the school and chief flight instructor; Eddie Horton, flight instructor; Cleo Bennett, secretary; Johnny Grissom, flight instructor; Johnny Spoon, mechanic; and Cliff Bell, mechanic's helper. H. E. Jenkins, dean of the college, is director of the CAA students, while E. A. Lawver, faculty member, is ground instructor.

Parker. There are several more taking instructions who have not yet soloed.

Johnny Grissom has been added to the flying instructors' staff.

Virgil Steifer, airport employe and private pilot, has resigned and is planning on taking a position in Dallas soon. His new connection will also be in aviation. He was succeeded by Lofton Stelter.

After completion of the remodeling of the airport office (an attractive rustic finish) all of the pilots spent some time wondering what there was about it that looked so familiar. They couldn't quite decide, until one particularly persistent "wonderer" remembered that it looked very much like a certain "night spot" about town. Mr. O. C. Palmer remarked that it was the best plan he could think of to keep the pilots on the job and at the same time make them feel perfectly at home. And he was right. . . . It's working.

—*ELSIE GIPSON.*

Waxahachie, Texas

CPT Starts At Trinity University

Sorry that we have not yet contributed to the archives of Southern Aviation, but there has been barely time to complete the various and sundry CPT forms—besides flying. In other words, we have had something else to do besides write.

The oldest institution of higher education in the State of Texas, Trinity University, has branched out with CPT—thanks to Boyd Kennedy, the contractor and instructor. The students chosen for the training were Ray Clapp, Walter Denton, David Fox, Maxon Graham, Clarence Handley, Dorothy McDonald, Tommy McCuiston, Jack Morris, Leonard Robinson and Francis Vale. Most of them have completed Stage B, and (as the inspectors will discover) will be ten of the best. All ten students are doing a crackerjack job of flying.

Other than CPT flying, there is a great demand for private instruction. Private students include Bill Elliott, J. H. Farrow, J. R. Jackson, Charlie Morse, Jim Ward, Billy Watson, Tom Whipple, Robert Moore, of Waxahachie and M. E. Layton and S. S. Williams of Ennis. Already, a few of the boys are shopping around for airplanes of their own and the Waxahachie Airport should soon be plenty active.—*L. D. CONDER.*

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By The Old Cowhand

GUESS you hands wonder where I've been so long. Will tell you directly. But want to report first that private flyin' sure has took over the old ranch. These pilots are gettin' so thick, well, something is goin' to happen one of these days and I know what it is but I won't tell. It has been a great thing for some of these old-timers. Put them back in circulation. Some of them have even learned to fly—they have only been driving airplanes around for the past 15 years. I guess I should of taken some of these new fangled lessons. But I like to remember how I used to bend them around without the book.

WELL, I bin up to New Yawk. I went up with the cowboys to Madison Square Garden and did I have fun! Spent 19 days there. It was the wildest rodeo I ever saw, had the best cowboys, the wildest horses, best looking girls and the meanest Bramer Bulls I ever saw. They had a black Bramer Bull that the Big Town ruined. He made the cowboys climb the fence faster than the Greeks made Mussolini's boy scouts climb the Albanian Mts. After playing around with the cowboys at Madison Square I quit the CAA and joined the CTA.

Had to ride the train account of weather. You know it has been so long since I rode a train I found out that everything that flies ain't up in the air. When they hooked us on that New York Central those telephone poles looked like a picket fence. It was flyin' too low for me. Don't get the idea them trains don't operate on schedule. I had a ride in a cab on one of those NYC engines. The speedometer settin' on from 90 to 95 m.p.h. Ever now and then the old boy would look at his watch and blow the whistle. He ain't never looked out the window—wouldn't do no good anyway—just better not be anything on the crossing.

I spent a couple of days out at LaGuardia Ranch and do they do the flyin' around that place! Just like the lucky strike man said, though, it's American Airlines two to one. Lots of the hands around the place are from the cow country—chief wrangler C. R. Smith, Red Mosier, etc. After looking things over around there I think aviation is here to stay. It sure has changed a lot after the years I spent in the business. For awhile I could chizzle a ride or two—now I can't even get into the airport without a pass and a guide! After a tour through the airport I had everything explained to me about flying by paying a dime to go out on that upstairs porch to see the airplanes come in. But I sold a few autographs for a dime and made a profit anyway.

May not be much down in Texas but I done all right in the Big Town. If you doubt it drop me a card and I'll send you a pitcher of me on a horse parked on a corner of 8th Ave. and 49th St. looking over some blondes, or just drop by the Fuller Ranch at Fort Worth (you can't miss me, I'll have on a red shirt, cowboy boots and gambler's pants) and I'll give you the pitcher personally.

HAVE been snoopin' around lately to get the news. I think there's a war goin' on some place. Anyway a friend of mine sent me the following on the subject of:

ANCIENT HISTORY AND THE WAR

(NOTE: It is an interesting symptom of the times that a knowledge of ancient history is prerequisite to becoming a combat pilot in the U. S. Army Air Corps.)

Report of General E. Rushmore Cuttledumpt, U. S. Calv. Att. 135th Div., Local No. B-41937, Field Office gg-47398620. Cable Address: DUMP. *To the Hon. Secretary of War:*

On April 7th we sent out our scouts and our Advance Guard as skirmishers from the camp 6 mi. north of the town of Frijole, Texas, Lat. 28° 14′ W., Long. 98° 40′ N. An enemy armored division was believed to be crossing the border at Carta Blanca. This our scouts immediately confirmed. Upon a meeting of the staff we decided to attack the enemy at once. Omitting the details, the attack planes and light bombers were to bomb and strafe the enemy's advance guard; the motorized cavalry was to engage the enemy's flank; and the horse calvary with machine rifles and mortars were to proceed twenty miles south and encircle the rear. The regiment was assembled and our immediate problem then was to determine the readiness of our forces. Col. E. B. Wingover of the flight patrol conveyed to the staff this intelligence:

"Sir, three-fourths of our combat pilots, upon examination, are completely unequipped for action. Lt. Smith, for instance, doesn't know Theodoric from Theology. Lt. Jenkins, another lamentable example, thinks the Battle of Salamis was a fight between two Jews in a delicatessen. He identified the Battle of Marathon as a filling station holdup."

To be brief in this report, Hon. Secretary, it was thus with the other pilots. We decided to abandon the use of combat planes. However, Maj. E. Curry Fetlock, of the armored cavalry, reported:

"Communique No. I-Q, To Staff Commander, Sir, Approximately 65 per cent of our forces are not yet ready to engage the enemy. None of the gunners could tell the First Punic War from the Second Punic War, or the Second Punic War from the Third Punic War, and so on to the Fifth (and you will recall the last) Punic War. I asked Lt. Whinny what he knew about Hannibal and he replied that he had never played the game. Capt. Werstphart thinks Vercingetorix is a New Orleans restaurant, but isn't sure. (signed) E. C. Fetlock, Maj. Cav., Ph.D."

In view of the circumstances, the staff concluded to make a frontal attack on the enemy with the horse cavalry with machine rifles. However, Maj. J. W. Shank reported as follows:

"Our platoon commanders are totally unready for any sort of action. They think that Pericles is a Greek wrestler. Sgt. Rump was asked the difference between an Ostrogoth and a Visigoth and he answered, 'A Goth is a Goth, for Goth sakes'. He was court-martialed for insubordination."

We have retired north and east to San Antonio, where the barracks are insufficient, but there is a good library. The enemy now holds the strategic Mustang Heights, which we will attempt to recapture when we become prepared. Awaiting the Hon. Secretary's pleasure,

E. RUSHMORE CUTTLEDUMPT,
Gen. Cav. Att. 135th Div.,
D. Litt., Harvard '05.

SPEAKING of the war and pilots, here is something out of the old scrap book that's too dern good to keep. It's a medical explanation of the term "inherent flying ability" once posted at Kelly Field some years back:

"The pilot must possess the innate faculty of selective and instinctive discrimination of the stimuli of the sensor-motor apparatus to harmoniously adjust metabolic changes in physiological and psychological equilibrium in such manner as to comprehend and assimilate instruction in the attributes essential to perform the intricate and complex operations which constitute the details of pilotage."

WE wuz down to the Airknocker factory in Middletown, Ohio, just before Mutton Milk Carl Wootten resigned his job. They were braggin' about some chile that cowboys Roy Taylor and Clint Shirley sent them from the ranch. The Airknocker corral was so busy turning out airplanes we got two coats of dope and three coats of paint just going down the assembly line trying to see how they done it. Then we went up to Vandalia at Dayton. "Oh Promise Me" Bill Lear was hollywooin' in California but sales wrangler Bob Van Cleve showed us around the diggins. One thing I noticed about the Lear Ranch—the customers always come back. Cowboys Ray Brown, Howard Mattes and Bill Green were in there but we couldn't find out if they was after more stuff or their new gadgets were just out of tune.

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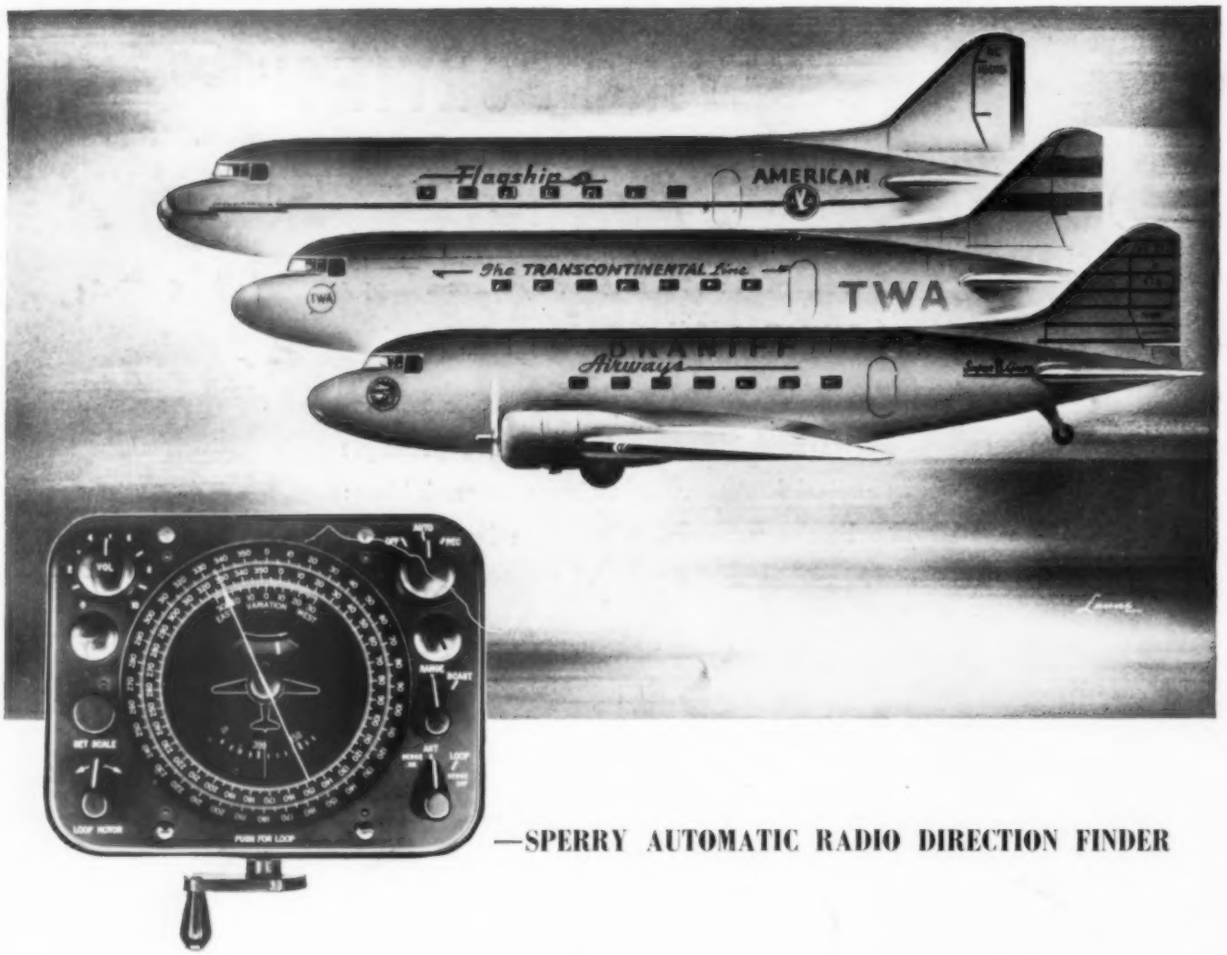

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